Ba -- Bacochibampo Bay

Gu 1	21	Nov	53	Guayamos	N. Bac Bay
Gu 2	22	Nov	53		BAC
3 & 3A	21-21	Nov	53		
4	23	Nov	53		Batuecos
5	24	"			"
6	25	"			"
7	26	"			Bac
8	27	"			Bac
9a	12	Dec	53	sand with cobbles	Bac
9b	13	Dec	53	sand & silt	Bac
10	14	Dec	53		Batuecas
11	15	Dec	53		Bac
12	16	Dec	53		Soldado Bay
13	17	Dec	53		Soldado Bay
14	18	"			Soldado Bay
15	19	"			Soldado Bay
16	20	"			El Cochori
17	21	"			Bac
18	22	"			Soldado Bay
☆ 19	16 & 18	Oct	54		Heinecke's
20	19	Oct	54		Venarios Beach

☆ Heinecke's : shells purchased from "Heinecke" for 1 peso each

MAZ = Mazatlan

MAZ 1	1 Dec 53	Mazatlan, N. to Gaviota
2	2 Dec 53	" " "
3	3 Dec 53	Mazatlan; S & West
4 & 4A	4 " "	Maztlan, N of Gavieto
5	5 " "	MAZ near Old Fort
6	10 Dec 53	MAZ east of Old Fort
7	54 6 Nov 54	MAZ, Gaviota Beach
8	6 Nov 54	MAZ Cammu rovi Point
9	8 Nov 54	MAZ near Chile Point
10	9 Nov 54	" " "
11	10 Nov 54	MAZ Zavalo Point
12	11 " "	" " "
13 A & B	12 Nov 54	A. Camaron Pt. B. S. of Pt Zavalos
14	December 55	Gaviota Beach
15	8 Dec 55	Camaron PT.
16	30 Dec 55	East of Old Fort
17	23 Dec 58	—
18	27 Dec 58	Faroe Island
19	27 Dec 58	" "
20	1 January 59	Zavaldo
21	9 Jan 59	MAZ in a Marine Cove
22	10 Jan 59	in Marine Cove
~~23~~		
~~24~~		
~~25~~		
~~26~~		
~~27~~		
~~28~~		
~~29~~		

MZ = Manzanillo

Mz 1	17	Dec	55		MAzanilla
2	18	Dec	55	MZ	Santiago Bay
3	19 & 20	Dec	55		MAzanilla st west
4	22	Dec	55		Santiago Bay North side
5	23	Dec	55		" "

S. B. = San Blas

1	7	Dec	53	San Blas
2	8	"	"	"
3	23	Nov	54	at Matanchen Bay
4	24	"	54	" "
5	25			
6	26	Nov	54	Matanchen, S.
7	13	Dec	55	Matanchen West to Camaron Point
8	Dec	25	1955	" south
9	Dec	26	55	Matanchen West
10	Dec	26		"
11		27		"
12	Jan	17	59	Matanchen
13 A B C	Jan	18	59	"

Malacologia June 1967

LIST OF SPECIES IN NAPLES COLLECTION

Protozoa

1 Aulacantha scolymantha
2 Collozoum inerme
3 Thalassicolla nucleata

Porifers

4 Euspongia officinalis
5 Suberites domuncula

Coelenterata Hydromedusae

6 Oceania pileata
7 Lizzia Koellikeri
8 Pennaria distika
9 Tubularia larynx

Siphonophora

10 Velella spirans
11 Ballistemma rubrum

Acalephae

12 Rhizostoma pulmo
13 Charibdea marsupialis

Anthozoa

14 Bunodactis rigida
15 Anemonia sulcata
16 Alcyonium palmatum
17 Calliactis parassitica con Pagurus striatus
18 Pennatula rubra
19 Corallium rubrum

Ctenophora

20 Beroe cucumis

Echinoderms crinoidea

21 Antedon rosacea

Asteroidea

22 Marthasterias glacialis

Ophiuroidea

23 Ophioderma longicauda

Echinoidea

24 Psammechinus microtuberculatus

Holothurioidea

25 Cucumaria Planciii

Plathelminthes Polycladida

26 Tysanozoon Brocchii

Annulata Polychaeta Errantia

27 Diopatra neapolitana

Sedentaria

28 Spirographis Spallanzani

Hirudinea

29 Pontobdella muricata

Sipunculida

30 Sipunculus nudus

Echiurida

31 Bonellia viridis

Chaetognata

32 Sagitta sp.

Bryozoa

33 Flustra papyrea

Crustacea Cirripedia

34 Sacculina sp. su Pachigrapsus marmoratus

35 Lepas anatifera

Stomatopoda

36 Squilla desmarestii

Decapoda macrura

37 Palinurus vulgaris
38 Homarus vulgaris
39 Scyllarides latus

Decapoda Brachyura

40 Eriphia spinifrons

Isopoda

41 Anilocra physodes
41 bis Idothea Hectica
42 Anilocra physodes
43 Emethea audouinii
44 Emethea audouinii
45 Meinertia italica
46 Meinertia italica
47 Sphaeroma
48 Gyge branchialis

Pantopoda

49 Phoxichilus vulgaris

Gastorpoda

50 Neverita josephinia
51 Aplysia punctata

Heteropoda

52 Pterotrachea coronata

Pteropoda

53 Cavolinia tridentata

Scaphopoda

54 Dentalium entalis

Lamellibranchia

55 Tapes decussatus
56 Pinna nobilis
57 Solen vagina

Cephalopoda

58 Octopus vulgaris
59 Sepia filliouxi

Brachippoda

60 Terebratula vitrea

Tunicata

61 Ascydia mentula

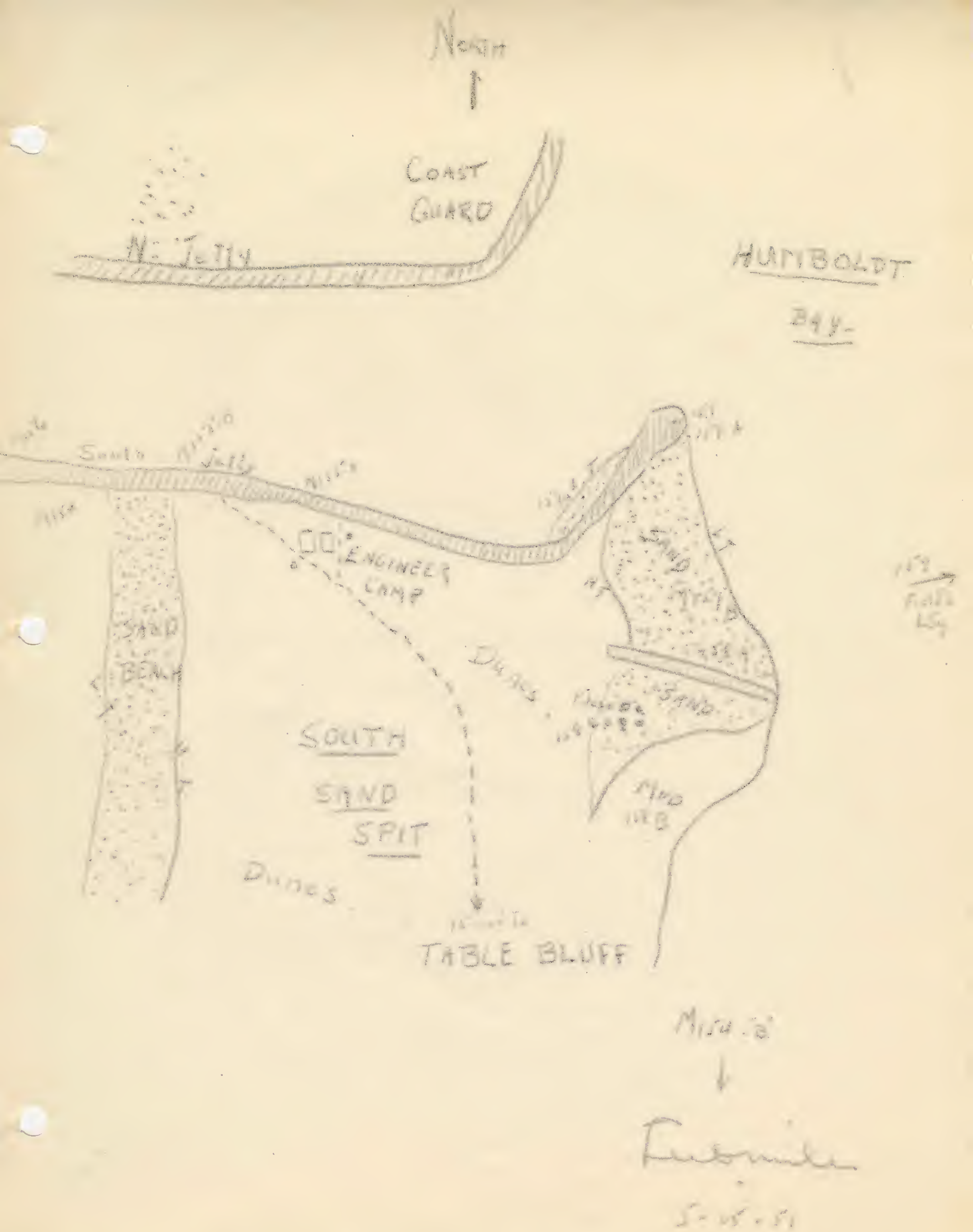
Salpae

62 Salpa maxima solitaria

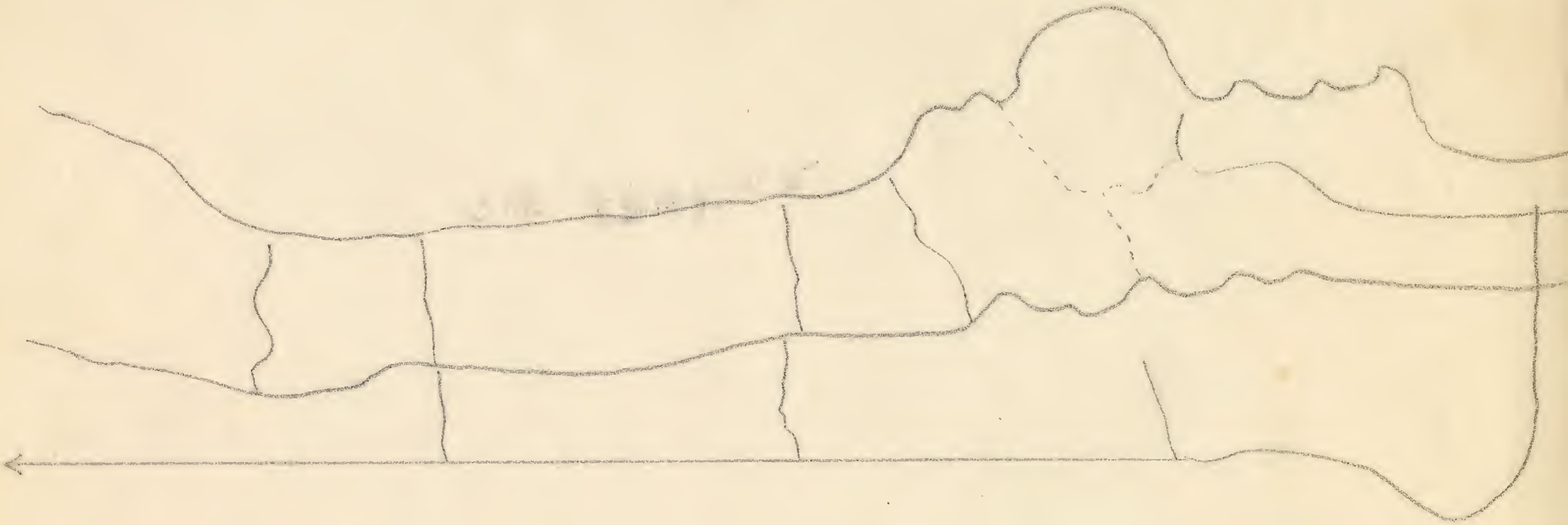
Pisces

63 Scylliorchinus steffaris
64 Scorpaena scrofa
65 Solea ocellata
66 Hippocampus
67 Fierasfer acus
68 Eggs of Sepia filliouxi

MAPS


North
Coast Guard
N. Jetty
Humboldt Bay
Engineer Camp
Sand Hills
Sand Bank
Dunes
South Sand Spit
Table Bluff
Miles
Fairhaven

1.1
2.8
6.6
N
16.0
22.8
23.3
27.7



BC — 1 — 63

Collection BC 1 - 50 LA PLAYITA, B.C.

April 3rd, 1950.

Collected at LA PLAYITA, a small beach several miles north of ENSENADA, BAJA CALIFORNIA; gravel to large boulders, roughly worn, without much fine sand. Collected in Zones 1, 2 & 3.

Collections include:

Hoppers
Clam, juvenile?
Keyhole Limpet, brown rayed on white.

Lamp shells	Specimen #	121
Shrimp	"	143
Coral ?	"	144
Chiton, large, blonde	"	148
Chiton	"	149
Chiton	"	150
Chiton	"	151
Chiton (Nopalia?)	"	152
Chiton ; small, reddish	"	153

Collector,

Lee O. Miles

Collection BC 2 - 50

SAN YSIDRO POINT
B.C.

April 4th, 1950.

Near the fishing village of SAN YSIDRO, BAJA CALIFORNIA, north 0.5 miles from the Point north of the mouth of SAN YSIDRO CREEK. Among and on boulders on the rock beach, some large gravel and little sand. In Zones 1, 2 and upper 3.

Collections include:

Keyhole Limpet, mantle covering most of it.
Rock Oyster, so-called.Worm.
Worm tubes with worms, attached to above.
Sipunculids with above.

Gastropod, medium, banded, toothed like Acanthina.		Specimen #	113
Littorina scutulata?		Specimen #	114
Amphissa		"	122
Keyhole Limpet, rayed		"	123
Compound Ascidian?		"	138
Shrimp	See BC 1	"	143
Chiton		"	158
Chiton		"	159
Chiton		"	160
Chiton		"	161

Collector

Lee O.Miles

Collection BC 3 - 50.

GOMEZ BEACH
B.C.

April 6th, 1950

Collected at GOMEZ BEACH, on a low reef down the valley west from Gomez Store and Hamilton Ranch at COLONIA VINCENT GUERRERO, BAJA CALIFORNIA. This reef is covered with loose boulders averaging about 12 to 20 inches in diameter, well-rounded, and with much sand. Zones 1, 2 & 3.

Collections include:

Conus shell
Isopod
Crab, black-tipped claws.
Acmaea paleacea On Eel Grass.
Shrimp

Octopus	Specimen #	111
Worms, dark green, in rocky tubes	"	131
Worm and tube	"	136
Crab	"	137
Isopod	"	139
Hoppers	"	140
White "bags"	"	146

Collector,

Leo O.Miles

Collection BC 4 - 50 SAN QUENTIN BAY, B.C.

April 7th, 1950.

Collected on the muddy sand flats at the old mole, on SAN QUENTIN BAY, BAJA CALIFORNIA. Zones 1, 2 & 3.

Collections include:

Crab, hairy	Specimen #	109
Snails, channeled, mud flat.	"	117
Cerithidium-like, small	"	118
Sponge, heavy mat	"	125
Sponge, erect	"	126
Shrimp, mud. Callianassa ?	"	127
Corymorpha ?	"	130
Chiton	"	162
Chiton	"	163
Chiton	"	164
Chiton	"	167

Actaeon punctocoelata
Cerithidea calif.
Sea Anemone, tiny

Collector,

Lee O. Miles

Collection BC 5 - 1950 LA PLAYITA,
B.C.

April 6th, 1950

Collected on rocky beach north 2.0 miles from LA PLAYITA, which itself is several miles north of ENSENADA, BAJA CALIFORNIA. Collected in Zones 1, 2 & 3, among and on boulders on solid rock, with little sand. Not lava.

Collections include :

Octopus	Specimen #	110
Gastropod, murex type	"	112
Gastropod, small white, murex type.	"	115
Macron	"	116
Worm	"	133
Comp. Ascidon?	"	134
Nudibranch (like Hermissenda)	"	135
Pisaster giganteus capitatus	"	147

Rock Oyster
Nudibranch
Acmaea
Starfish other than above.

Collector,

Leo O.Miles

Collection BC 6 - 50 LA PLAYITA, B.C.

Aprl 10th, 1950.

Collected 2.5 miles north of LA PLAYITA, which is several miles north of ENSENADA, BAJA CALIFORNIA; on and under loose boulders on a reef, with little sand.

Collections include:

Nudibranch - like Hermissenda	Specimen #	101
Nudibranch - brown	"	102
Crab, heavy claws	"	103
Nudibranch, white	"	104
Ascideae	"	105
Kelp Crab	"	106
Hydroid on kelp	"	107
Shrimp	"	108
Sponge	"	132
Chiton	"	168
Chiton	"	169
Chiton	"	170

Octopus, juvenile
Cling Fish
Crab, black tipped claws
Mitella
Crab - like Mimulus
Crab, hairy

Collector

Lee O.Miles

Collection BC 7 - 50 LA PLAYITA, B.C.

April 11th, 1950

Collected on and under loose boulders and in rock crevices on rocky shore 1.0 miles north of LA PLAYITA, near ocean beacon, about 3.0 miles from ENSENADA, BAJA CALIFORNIA.

Collections include:

Gastropod, turret type.	Specimen #	119
Gastropod, small, sculptured	"	120
Brittle star, arms bristled	"	175
Brittle star, banded, "	"	176
Brittle star, large, bands, brown.		177
Brittle star, small brown, smooth		178

Norrisia norrisii
Astraea
Pea clam (like wheat kernel).
Crab, long snout.
Worn gastropod (Murex gemma?)

Collected by

Leo O.Miles

Collection BC 8 - 50 SAN YSIDRO POINT
B.C..

April 12th, 1950

Collected 1.0 miles north of SAN YSIDRO POINT, which is at the mouth of SAN YSIDRO CREEK, west of SAN VICENTE, BAJA CALIFORNIA. In zones 1,2 & 3, amongst boulders on rocky and much worn shore, with considerable fine sand.

Collections include:

Keyhole Limpet. See also BC 2.	Specimen #	123
Sponge	"	124
Hydroid	"	129
Hydroid	"	141
Caprellid	"	142
Shrimp	"	145
Chiton	"	171
Chiton	"	172
Chiton	"	173

Conus - worn
Pecten - juvenile
Isopod

Collected by

Lee O.Miles

Collection BC 9 - 50 CAMP CAMALU, BC

Collected April 14th, 1950

On a rocky beach in Zones 1 and 2, at the mouth of a large arroyo about 1.0 mile north of the old army camp in CAMALU ARROYO, which is 15 miles north of GOMEZ STORE at COLONIA V,GUERRARO. Loose rounded boulders lie on nearly horizontal strata of sandstone and limestone, with some fine sand and gravel.

Collections include:

Chiton	Specimen 165
Chiton	" 166
Keyhole limpet, rayed.	
Crepidula onyx	

Crawfish remains plentiful along this beach. It would be an interesting beach to collect on if tides were favorable.

Collected by
Lee O.Miles

Collection BC 10 - 50

LAGUNA SANTA MARIA
B.C.

April 15th, 1950

Collected on the flat sand beach opposite and south of LAGUNA SANTA MARIA, which lies several miles south of SAN QUENTIN BAY. A beach of the Salmon Creek or Oceano type; but at its southern end, becoming gravelly.

Collections include:
Shells only.

Crepidula ony x
Macoma sp.
Haliotis fulgens
H. cracherodii
Tivela stultorum

Collections ~~XXXXXXXX~~by

Lee O.Miles

Collection BC 11 - 50

PORTO SANTO TOMAS
B.C.

April 16th, 1950

Collections made south of the village at the mouth of RIO SANTO TOMAS, on and among the rocks and boulders of a badly eroded headland of conglomerate.
In Zones 1 and 2 only.

Collections include:

Chiton, large	Specimen # 154
Chiton	" 155
Chiton	" 156
Chiton	" 157
Chiton	" 174

Tegula
Norrisii
Kelp Crab

Collector

Lee O.Miles

Collection BC - 12 - 50 CAMALU BEACH
B.C.

April 17th, 1950

Collected on conglomerate boulders lying on nearly horizontal strata at the foot of cliffs, at a point about 0.5 miles north of the area collected on Collection BC 9; about 1.5 miles north of the old army camp in ARROYO CAMALU, 15 miles north of COLONIA V. GUERRARO, HAMILTON RANCH.

Collections include:

In Zones 1 & 2 only.

Chitons
Clams, small white.
Crab, small, snouted.
Crayfish, washed ashore.

Flat worms Specimen # 128

Collector

Lee O.Miles

Collection BC 13 - 50

OCEANO BEACH
Calif.

April 22nd, 1950

Collected on the nearly flat sandy beach, well-packed, south of the PISMO BEACH on OCEANO BEACH, CALIFORNIA.

Collections include;

Tivela stultorum ; many of these lying on wet sand, were observed to right themselves and bury in the sand.
Sand crab
Jack-knife clam

Collector

Lee O.Miles

Collection BC 14

Ensenada, B.C.
La Playita.

April 14th, 1951 9.00 AM - 11.00 AM

Low tide at 10.30 AM - 0.6' No surf.

North of Light on point about 1 mile north of LA PLAYITA, which lies about 2.5 miles north of ENSENADA, on main Highway. On open Pacific coast, on boulders on base rocks, mostly lava, with much washing sand from sand beaches in coves on both sides of this point.
In Zones 2 & 3.

Collections include:

Pugilia; male and female, mating. Male bright red, female dark brown.
Patiria, small specimen.

Pisaster with large spots, short heavy 5 arms.

Star fish with 5 long limber arms, dark red to brown.

Haliotis fulgens, blue abalone; small specimen.

Haliotis cracherodii, black abalone; small specimen.

Murex

Cypraea, small specimen

Chitons
"
Lantern shell, small.

Brittle Stars
" "
Sponge, yellow, changed to purple in 95% Iso-propyl.

ALGAE.

Collector.

Lee O. Miles

Collection DC 15 EMENHADA, B.C.
Santa Thomas

April 15th, 1951. 10.00 AM - 12.30 PM

Low tide at 11.15 AM. 0.3' No surf.

Below cribbedge on highway entering SANTA TOMAS Valley from EMENHADA, west down SANTA TOMAS River to coast to village of fishermen north of mouth of river; thence north around a headland about ½ mile to a camp spot at cliff top.
On open Pacific coast, on solid rock overlain in spots by sand and boulders. Zones 2 & 3.

Collections include:

Haliotis crocherodii; many small to medium also.

Haliotis fulgens; not plentiful.

Zonaria spadicea, Chemnot Cowrie. N. 3, among boulders.

Cetropod, Murex like, spine.

Sea Anemone.

Brittle Stars, feathery arms, large.

Patiria, large.

Cucumaria, yellow

Nudibranch, small, plain yellow

Nudibranch, red.

Norrisii, small.

Cypraea, small.

Collector,

Lee O. Miles

Collection BC 16

ENSENADA, B.C.
San Ysidro

April 16th, 1951. 12.00 M to 3.30 PM

Low tide at 12.00 M. Little surf.

South from ENSENADA to SAN VICENTE, thence west down San Ysidro River, crossing and recrossing some many times, to coast; north from the small village north of the mouth of the stream for about 1½ miles to a rocky point with a bird whitened islet; in the lee of this point in a small cove, in Zones 1, 2 & 3. An open abruptly rocky coast, here partially protected, on solid rock ; of lava conglomerate and sandstone, in strata nearly horizontal; with much sand washing in;
"A" And further north beyond this point to a wide sandy beach open to the sea. Collected 4 miles north of SAN ZHIMEO.

Collections include: From rocks of Point Cove:
Acanthina lugubrina
Thais ~~lugubris~~
Littorinas
Lottia gigantea
Diliotis cracherodii, numerous, all sizes.
Mytilus, many with -
Dryosca on above
Compound Ascidea
Isopods
Volcanoe keyhole limpet
Crabs, small, big claws.

"A" From open sandy beach N. of Point.
Sand Crabs
Piano clams
Donax
Sand Dollars, green, keyhole, circular
Cowrie shells.

Collector

Lee G.Miles

Collection BS 17

SONORA, B.C.
San Isidro S.

April 17th, 1951 11.00 AM - 2.00 PM

Low Tide at 12.35 PM. Moderate surf.

South from the mouth of SAN ISIDRO RIVER (See BS 16) for several miles to "TRIAN'S MINE", iron and lava;
Open abrupt rocky coast; lava conglomerates and lava;
deep water off much of the rocky points, with small sandy coves and narrow inlets, waves 1 & 2, then dropping abruptly to deep water. Strata nearly horizontal.

Collections include:

Worms, sandy tubes, on overhang of rock away from surf.

Acanthina lugubris Laying eggs.
Thais " "
Lottia gigantea " "
Corralines, like King Tree.
" " leaf.
Rock Oyster
Coeco barnacle

Collector

Lee O.Miles

Collection BC 18

Ensenada, B.C.
Colonia Guerrero

April 1-th, 1951 11.00 AM - 2.30 PM

Low tide at 12.45 PM 0.0' Moderate surf

South on the main highway from ENSENADA, B.C., to COLONIA GUERRERO, Gomez Place and Hamilton Ranch; thence west down the valley of RIO SANTO DOMINGO to its mouth (apparently permanently closed by sand dunes, ending in a marshy lagoon) at SAN RAMON BAY.
Collected on boulder field of rounded boulders, with sand abundantly washed in . Boulders of assorted kinds, mostly hard and smooth, and loose; average diameter 12" - 18".

Collections include:

Rock Oysters

Isopods

Shrimp

Tegula, striped.

Littorines, black
" green, and eroded.
Gastropods, striped.

Crepidula

Pteptoheca stamina

Patiria

Chitons
"
"
Crab, heavy claw, black tip.

Worms, build boulder like mass of cases.

Acmaea on Kel Grass.

Collector

Leo O.Miles

Collection BC 19 ENSENADA, B.C.
San Quintin Bay.

April 19th, 1951. "A"10.00 AM - 12.00 M "B" 12.30 PM-23.0 PM

Low tide at 1.10 PM 0.2' Low surf.

South of ENSENADA on main highway, beyond Colonia V.Guerrero and Gonzo Placo to end of present grading of highway, then angling on dirt roads southwesterly to LAGOON SANTA MARIA.
"A" Beach at this point on both north and south, is a flat hard packed sandy beach, no boulders, backed by low blowing sand dunes. On main SANQUINTIN BAY.
"B" North to the old MOLE (Mole) at ruins of old English colony, west of the end of present highway grade, on dirt road. Beach about the Mole is hard sand, with mud or silt overlaying it in some areas.

Collections include:

"A" In Zone 1 and upper Z. 2, mostly near High tide mark:
Mytilus, bearded.
Tivela stultorum; being harvested commercially now.
Kollottia ?
Glan
Glan
Crepidula onyx.

"B" In Zones 1,2 and upper 3.On sand-mud flats.
Sponge, in clumps in mud.
Sponge, white top.
Gastropod, brown, deeply channeled.
Crepidul on above.

"C" On piles of old mole - steel rails.
Oysters
Sponge
Sponge
Bryozoa
Hydroids
Compound Ascidos.

Collector

Lee O.Miles

Collection BC 20

ENSENADA, B.C.
Santa Maria Lagoon.

April 20th, 1951.

Low tide at 1.40 PM; 0.4'.

South of ENSENADA on main highway past COLONIA V. CARRANZA and COLIN PLACE, past end of graded highway at entrance by dirt road to west to SAN QUINTIN BAY, to LAGUNA SANTA MARIA on main bay. Drove north 5 miles on flat sandy beach, well packed, to sandy point of not packed sand. Here this small sandy point encloses a cove to south, small; and a larger cove to north, this with deep mud banks and bottom.

Returned to Lagoon, then drove 8 miles southward. The flat and wide beach of packed sand gives way to a narrow belt of cobbles below steep alluvial cliffs. At 8 miles a point of loose boulders averaging better than 1.0' diameter, projects into the bay, and promises excellent collecting when then tide is right.

Collections were of dead shells only, at or near high tide mark.

At the sandy point north of the lagoon, many Tethys were left on shore near hightide mark.

Collector,

Lee O.Miles

ENSENADA, B.C.
Camalu
April 21st. 1951

Collection BC 21

Low tide at 2.25 PM of 0.7'

West from main highway at small store about 10 miles north of Colonia V.GUERRERO, on dirt road to CAMP CAMALU in arroyo near coast, site of "cliff dwellings in and against walls of arroyo. Old highway enters from south here, proceeds north parallel to coast, above high alluvial cliffs. Midway between CAMALU and JOHNSON'S RANCH, turn 125 yards to top of cliffs above rocky beach at SEA LION'S POINT.
Down cliff where a section has fallen off within a few years. Beach narrow, of cobbles and atb several points, on boulders on bed rock. Rocks mostly conglomerates and sandstones. Strata contain many semi-fossilized sea shells. Cliffs above and non-conforming, are alluvial.
Huge sandstone "tree" half out of strata, 10" diameter, circular, to oval 24" -28" ;

Collected briefly, same as below in BC 22.

- - - - - - - - - - - - - - - - -

Collection BC 22

ENSENADA, B.C.
Camalu

April 24th, 1951. Low tide at 4.50 AM -1.2'.

Collected at SEA LION POINT, described above as to north access; on south of point, reached beach by gully near Camp Ground.

Collections for BC 21 and BC 22 include: At low tide, A.M.

Octopus
Sipunculids, large.
Brittle star.
" "
Worms, red.
Pholads
Protothacus staminaea
Tegula
Crepidula
Rock Oyster
Limpets, keyhole.
Limpets, plain.

Not a prolificbeach, but representative.

Collector

Lee O.Miles

Collection BC 23 ENSENADA, B.C.
La Playita.

April 26th, 1951. At low tide, sunrise.

Low tide 6.00 AM, -0.9' Low surf.

At rocky point just north of LA PLAYITA sandy beach, which is 2 miles north of ENSENADA. Loose boulders on bed rock on point exposed to sea, much washing sand, particularly on north side.

Collections same as for BC 24, below.

- - - - - - - - - - - - - - - - - -

Collection BC 24 La Playita Point.

April 26th, 1951 5.30 AM - 8.30 AM

Low tide at 7.00 AM, -0.6' Low surf.

At sand point as described and located above in BC 23.

Collections include:

Sipunculids, large, under boulders.
Chitons, many spawning.
"
"
Astrea undosa, Wavy Top.
Heliotis cracherodii
" fulgens
Murex, winged
", or drills, plain.
Norrisii norrissi
Spire shells, small, slender.
Clam, small.
Hydroids
Nudibranch
Worm, red, under bhulder.
Encrustations on gastropods.

Collector

Lee O.Miles

Collection BC 25 (EN 1)

ENSENADA, B.C.
La Playita

May 2nd, 1952

Low Tide 10.15 AM, 0.5' High surf.

North of ENSENADA 2.5 miles, or ½ mile north of LA PLAYITA, just north of Light, on rocky coast, of boulders and bedrock of various kinds, especially lava; some sand.

Seev also BC 14, BC 23, BC 24.

Collections include:

Ischnochiton conspicuus, in various ages and sizes, in colonies on smooth rounded boulders.
Mopalia sp., large.
Chitons
Chitons
Acmaea patina ESCH. - blue inside, flattish.
Acmaea sp, ribbed small.
Fissurella volcanoe.
Lottia gigantea
Haminoea virescens? Bubble Shell, small; in numbers in Zones 1 & 2 with Algae around boulders, at edges of pools, most numerous where sand and silt meet rock.
Haliotis cracherodii, small.
Haliotis fulgens, small. Beach well picked over.
Astraea undosa
Tegula gallina, speckled turban.
Acanthina?
Chama?

Collector

Lee O.Miles

Collection BC 26 (EM 2) ENSENADA, B.C.
La Playita

May 3rd, 1952

Low tide 11.00 AM of 0.5' Heavy surf.

Collected on same site as in BC 26 and others, but also in sanded area further south toward Light.

Collections include:

Mapalia

Ischnochiton conspicuus - small specimens.

Chiton
"
Bubble shells - Haminaea?

Pecten valves

Acmaea
Acmaea
Acmaea
Haliotis rufescens, small. Area picked over by natives.

Haliotis cracherodii, small Area picked over.

Acanthina?
Pterorytis nuttalli.

Tegula ligulata?

Collector

Lee O.Miles

Collection DC 27 (EM 3)

ENSENADA, B.C.
Santo Tomas

May 4th, 1952.

Low tide at 11.30 AM. Surf moderate.

South along main highway to SANTO TOMAS VALLEY; at foot of entering switchbacks, dirt road down valley to west to lagoon at closed mouth; north along coast to Fish Camp south side of Santo Tomas Point. Collected on south of point; then returned to old camp site half way back.
Cliffs at both collecting areas, high and rocky except for upper 10 or 12 feet, which is alluvial. Immediate fore shore, gravel and cobbles, some sand. Most of intertidal zone is loose boulders on bed rock, much of which is exposed. Much conglomerate.
See also DC 11 and 15.

Collections include:

Encrustations on Tegula
Chama?
Cowrie shell - Zonaria spadicea
Haliotis cracherodii; small to medium large.
H. fulgens; tiny only.
Acanthina
Lottia gigantea
Star Fish - Pisaster sp.?
" " - large yellowish
Pateria
Anomia
Acgroa unlosa
Pteryzotus carpenteri - Carpenter's Rock shell.
Pterorytis nuttallii - Purpura?
Chiton
Chiton
Acmea scabra, juvenile.
Brato vitellina
Tegula
Norris/ia norrisii
Acanthina?, 3 stripes, small.
Thais-like, 2"-3", orange inside.
Crab, large heavy claws, black tips.
ALGAE - on Lottia gigantea
" - on Acmea scabra.

Collector

Lee O.Miles

Collection DC 28 (MM)

ENSENADA, B.C.
La Playita

May 5th, 1952

Low tide at 12.00 M, 0.7' Low surf.

Off the point at LA PLAYITA, north of ENSENADA about 2 miles. Boulders, cobbles and gravel on bed rock, exposed; with much sand washing in at margins of boulder field. Volcanic.

Collections include:
- Astrea undosa, small to medium.
- Pterynotis carpenteri, "Murex", fine specimens.
- Drills
- Dusky shells
- Haliotis cracherodii, small to medium
- Haliotis fulgens, small.
- Ischnochiton conspicuus.
- Chiton
- Chiton

See also DC 1,23, 24.

- - - - - - - - - - - - - - -

Collection DC 29 (MM 5)

ENSENADA, B.C.
La Playita

May 6th, 1952

Low tide at 12.30 PM. 0.8 ' Low surf.

Same as above DC 24, and further out.

Collections include:
- Astrea undosa
- Pterynotis carpenteri
- Drills
- Basket shells
- Cracherodii (Haliotis)
- Haliotis fulgens
- Chitons
- Chitons
- Lottia gigantea
- Pterorytis nuttallii (Hornmouth)
- Acmaea digitalis
- A. patina
- Acmaea sp. Small, spotted margin.
- Morrisia morrisii
- Shell of red-spotted crab (like Cancer)

(Pterynotis carpenteri, Drills, Basket shells: See specimens # 400 - 403.)

Collector

Lee O.Miles

Clocection BC 30 (MI 6)

BELLINGHAM, B.C.
Punta Banda

May 6th, 1952

Low tide at 1.30 PM, of 1.3'. Low surf.

In small inlet or cove at south of base of PUNTA BANDA, South of ENSENADA and TODOS SANTOS BAY; dirt road, rough. Steep rocky shore, with boulder and cobble beach at base, with sand in small areas; bed rock much exposed. Granitic. Much ALGAE off shore, especially Kelp beds.

Collections include:

- Collotia shells at fishermans camp.
- Haliotis corrugata shells at camp.
- H. cracherodii, all sizes, crevices.
- H. fulgens, tiny only.
- Acanthina lugubris
- Thais emarginata
- Acmaea digitalis
- A. scabra
- Lottia gigantea
- Nopalia sp.
- Isoinochiton conspicuus
- Chiton
- Haliberach
- Norrisia norrisii

Land snails

Collector,

Lee O. Miles

Collection BC 31 (MN 7) ENSENADA, B.C.
San Ysidro

May 9th, 1952

Low tide at 2.00 PM of 1.5'. High surf.

From ENSENADA, south to SAN VICENTE; west down San Ysidro Creek to coast, north to Bird Rock and iron ore deep near (S.) Point Cabras. On rocks, at Zone 1 mostly. See also 6, 16.

Collected :
- Tegula funebralis?
- Acanthina lugubris
- Lottia gigantea
- Chiton, small, orange.
- Haliotis rufescens, yellow.
- Hydroids
- Mytilis
- ALGAE - many present, an excellent place to collect.

- - - - - - - - - - - - - - - - - - - -

Collection BC 32 (MN 8) ENSENADA, B.C.
Gonzo Beach

May 11th, 1952.

Low tide at 3.00 PM of 2.0'. Surf high.

Opposite mouth of Santo Domingo Creek, closed, ending in lagoon with rushes; seepage thru dunes to sea.
In Zone 1 only.
See also BC 3, and succeeding collections.

Collections include:

- Acanthina lugubris
- Tegula funebralis?
- Littorine, striped.

Collector.

Leo O. Miles

Collection BC 33 (EN 9)

ENSENADA, B.C.
Rosario.

May 12th, 1952

Low tide at 3.45 PM of 2.3'. Open to moderate surf.

From ENSENADA on main highway past Colonia V. Guerrero, Gomez Place, San Quintin Bay, to ROSARIO on Rosario River; cross river, parallel it to dirt road taking off to south and west to PUNTA BAJA, the north arm enclosing ROSARIO BAY.
Beach with alluvial cliffs, cobbles, gravel and sand on bed rock; some protection from sea to north and northwest.

Coll ections at 3.00' tide includ e:

Bursa californica?

Jaton festivus Hinds

Fossil of above.

Piddock - fossil.

Acanthina lugubris

Thais emarginata?

Acanthina - Smooth dark shells.

Littorina, banded, small.

Should be an excellent collecting ground at a minus low tide.
Good camping sites.

Collector,

Lee O.Miles

Collection BC 34 (EN 10)

ENSENADA, B.C.
La Playita

May 15th, 1952.

Low tide at 8.00 AM of -0.5' Moderate surf.

North of La Playita on main highway to sign KM 101; then west to beach and 100 yards north to point with loose boulders on bed rock. Some conglomerate.

Collections include:

Ischnochitona conspicuus
Chiton - mottled brown.
Tegula sp.
Slim gasteropod, 1" long.
Haliotis cracherodii. 1, 2" long.
H. fulgens, ½" to 2" long.
Crab, heavy claw
Crab, small "minulus".
Crab, small Cancer?
Fish, small, prow nose, large fins.
Ensis shells.
Egg Case, spiral, composition like skate cases.
Acanthina sp.
Gasteropods, small.
" "
Barnacle on Oysters.

ALGAE.

Collector,

Lee O.Miles

Collection BC 35 (EN 11) ENSENADA, B.C.
Punta Banda

May 16th, 1952

Low tide at 9.00 AM of -0.3' Protected from surf.
N
South of ENSENADA to MAEADERO, west past Grulla Gun Club, to south end of TODOS SANTOS BAY, up to top of PUNTA BANDO, west along top to neck above Fish Camp, south down hill to Camp on cove on south side of Point.
See also BC 30.

Collections on boulders and bed rock:

Heliotis fulgens
H. cracherodii
Crabs, heavy jaws
Star Fish, heavy spines.
Drill
"
Tegula
Littorines, green, worn spire.
Crab, tiny, "mimulus"
Erato?
Nudibranchs, brown-orange.
Chama?
Ischnochiton conspicuus
Acmaea sp.
Terebra?
Acmaea, small, ribbed.
Mussels

ALGAE - Finger-like, green, with parasites.

Collector,

Leo O.Miles

Collection BC 14

Ensenada, B.C.
La Playita.

April 14th, 1951 9.00 AM - 11.00 AM

Low tide at 10.30 AM - 0.6' No surf.

North of Light on point about 1 mile north of LA PLAYITA, which lies about 2.5 miles north of ENSENADA, on main Highway. On open Pacific coast, on boulders on base rocks, mostly lava, with much washing sand from sand beaches in coves on both sides of this point.
In Zones 2 & 3.

Collections include:

Pugilis; male and female, mating. Male bright red, female dark brown.
Patiria, small specimen.

Pisaster with large spots, short heacy 5 arms.

Star fish with 5 long limber arms, dark red to brown.

Haliotis fulgens, blue abalone; small specimen.

Haliotis cracherodii, black abalone; small specimen.

Murex

Cypraea, small specimen

Chitons
"
Lantern shell, small.

Brittle Stars
" "
Sponge, yellow, changed to purple in 95% Iso-propyl.

ALGAE.

Collector.

Lee O.Miles

Collection BC 15

ENSENADA, B.C.
Santa Thomas

April 15th, 1951. 10.00 AM - 12.30 PM

Low tide at 11.15 AM. 0.3' No surf.

Below switchbacks on highway entering SANTA TOMAS Valley from ENSENADA, west down SANTA TOMAS River to coast to village of fisherman north of mouth of river; thence north around a headland about ½ mile to a camp spot at cliff top.
On open Pacific coast, on solid rock overlain in spots by sand and boulders. Zones 2 & 3.

Collections include:

Haliotis cracherodii; many small to medium size.

Haliotis fulgens: not plentiful.

Zonaria spadicea, Chesnot Cowrie. Z. 3, among boulders.

Gatropod, Murex like, spine.

Sea Anemone.

Brittle Stars, feathery arms, large.

Patiria, large.

Cucumaria, yellow

Nudibranch, small, plain yellow

Nudibranch, red.

Norrisii, small.

Cypraea, small.

Collector,

Lee O.Miles

Collection BC 16

ENSENADA, B.C.
San Ysidro

April 16th, 1951. 12.00 M to 3.30 PM

Low tide at 12.00 M. Little surf.

South from ENSENADA to SAN VICENTE, thence west down San Ysidro River, crossing and recrossing some many times, to coast; north from the small village north of the mouth of the stream for about 1½ miles to a rocky point with a bird whitened islet; in the lee of this point in a small cove, in Zones 1, 2 & 3. An open abruptly rocky coast, here partially protected, on solid rock , of lava conglomerate and sandstone, in strata nearly horizontal; with much sand washing in;
"A" And further north beyond this point to a wide sandy beach open to the sea. Collected 4 miles north of SAN YSIDRO.

Collections include: From rocks of Point Cove:
Acanthina lugubris
Thais ~~lugubris~~
Littorines
Lottia gigantea
Haliotis cracherodii, numerous, all sizes.
Mytilus, many with -
Bryozoa on above
Compound Ascidea
Isopods
Volcanoe keyhole limpet
Crabs, small, big claws.

"A" From open sandy beach N. of Point.
Sand Crabs
Pismo clams
Donax
Sand Dollars, green, keyhole, circular
Cowrie shells.

Collector

Lee O.Miles

Collection BC 17

ENSENADA, B.C.
San Ysidro S.

April 17th, 1951 11.00 AM - 3.00 PM

Low Tide at 12.35 PM. Moderate surf.

South from the mouth of SAN YSIDRO RIVER (See BB 16) for several miles to "FRIAR'S MINE", iron and lava;
Open abrupt rocky coast; lava conglomerates and lava; deep water off much of the rocky points, with small sandy coves and narrow inlets, zones 1 & 2, then dropping abruptly to deep water. Strata nearly horizontal.

Collections include:

Worms, sandy tubes, on overhang of rock away from surf.

Acanthina lugubris Laying eggs.
Thais " "
Lottia gigantea " "
Correlines, like Ming Tree.
" " leaf.
Rock Oyster
Goose barnacle

Collector

Lee O.Miles

Collection BC 18

Ensenada, B.C.
Colonnia Guerrero

April 18th, 1951 11.oo AM - 2.30 PM

Low tide at 12.45 PM 0.0' Moderate surf

South on the main highway from ENSENADA, B.C., to COLONIA GUERRERO, Gomez Place and Hamilton Ranch; thence west down the valley of RIO SANTO DOMINGO to its mouth (apparently permanently closed by sand dunes, ending in a marshy lagoon) at SAN RAMON BAY.
Collected on boulder field of rounded boulders, with sand abundantly washed in . Boulders of assorted kinds, mostly hard and smooth, and loose; average diameter 12" - 18".

Collections include:

Rock Oysters

Isopods

Shrimp

Tegula, striped.

Littorines, black
" green, end eroded.
Gastropods, striped.

Crepidula

Prptothaca staminea

Patiria

Chitons
"
"

Crab, heavy claw, black tip.

Worms, build boulder like mass of cases.

Acmaea on Eel Grass.

Collector

Leo O.Miles

Collection BC 19

ENSENADA, B.C.
San Quintin Bay.

April 19th, 1951. "A"10.00 AM - 12.00 M "B" 12.30 PM-23.0 PM

Low tide at 1.10 PM 0.2' Low surf.

South of ENSENADA on main highway, beyond Colonia V.Guerrero and Gomez Place to enf of present grading of highway, then angling on dirt roads soutwesterly to LAGOON SANTA MARIA.
"A" Beach at this point on both north and south, is a flat hard packed sandy beach, no boulders, backed by low blowing sand dunes. On main SANQUINTIN BAY.
"B" North to the old MUELLE (Mole) at ruins of old English colony, west of the end of present highway grade, on dirt road. Beach about the Mole is hard sand, with mud or silt overlaying it in some areas.

Collections include:

"A" In Zone 1 and upper Z. 2, mostly near High tide mark:
Mussels, bearded.
Tivela stultorum; being harvested commercially now.
Kellettia ?
Clam
Clam
Crepidula onyx.

"B" In Zones 1,2 and uppper 3.On sand-mud flats.
Sponge, in clumps in mud.
Sponge, white top.
Gastropod, brown, deeply channeled.
Crepidul on above.

"C" On piles of old mole - steel rails.
Oysters
Sponge
Sponge
Bryozoa
Hydroids
Compound Ascidea.

Collector

Lee O.Miles

Collection BC 20

ENSENADA, B.C.
Santa Maria Lagoon.

April 20th, 1951.

Low tide at 1.40 PM; 0.4'.

South of ENSENADA on main highway past COLONIA V. GUERRERO and GOMEZ PLACE, past end of graded highway at entrance by dirt road to west to SAN QUINTIN BAY, to LAGUNA SANTA MARIA on main bay. Drove north 5 miles on flat sandy beach, well packed, to sandy point of not packed sand. Here this small sany point encloses a cove to south, small; and a larger cove to north, this with deep mud banks and bottom.

Returned to Lagoon, then drove 8 miles southward. The flat and wide beach of packed sand gives way to a narrow belt of cobbles below steep alluvial cliffs. At 8 miles a point of loose boulders averaging better than 1.0' diameter, projects into the bay, and promises excellent collecting when then tide is right.

Collections were of dead shells only, at or near high tide mark.

At the sandy point north of the lagoon, many Tethys were left on shore near hightide mark.

Collector,

Lee O.Miles

ENSENADA, B.C.
Canalu

Collection BC 21 April 21st. 1951

Low tide at 2.25 PM of 0.7'

West from main highway at small store about 10 miles north of Colonia V.CUAUHTEMOC, on dirt road to CAMP CAWALU in arroyo near coast, site of "cliff dwellings in and against walls of arroyo. Old highway enters from south here, proceeds north parallel to coast, above high alluvial cliffs. Highway between CAWALU and JOHNSON'S RANCH, turn 125 yards to top of cliffs above rocky beach at SEA LION'S POINT.
Down cliff where a section has fallen off within a few years. Beach narrow, of cobbles and with several points, on boulders on bed rock. Rocks mostly conglomerates and sandstones. Strata contain many semi-fossilized sea shells. Cliffs above and non-conforming, are alluvial.
Huge sandstone "tree" half out of strata, 20" diameter, circular, to oval 24" -28" ;

Collected briefly, same as below in BC 22.

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Collection BC 22 ENSENADA, B.C.
Canalu

April 24th, 1951. Low tide at 4.50 AM -1.2'.

Collected at SEA LION POINT, described above as to north access; on south of point, reached beach by gully near Camp Ground.

Collections for BC 21 and BC 22 include: At low tide, A.M.
Octopus
Siphonalids, large.
Brittle star.
" "
Worms, red.
Pholads
Prototheca stemimacs
Tegula
Crepidula
Rock Oyster
Limpets, keyhole.
Limpets, plain.

Not a prolificbeach, but representative.

Collector

Leo O.Miles

Collection BC 23 — MESQUADA, B.C.
La Playita.

April 25th, 1951. At low tide, sunrise.

Low tide 6.00 AM, -0.0' Low surf.

At rocky point just north of LA PLAYITA sandy beach, which is 2 miles north of MESQUADA. Loose boulders on bed rock on point exposed to sea, much washing sand, particularly on north side.

Collections same as for BC 24, below.

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Collection BC 24 — La Playita Point.

April 26th, 1951 5.30 AM - 6.30 AM

Low tide at 7.00 AM, -0.6' Low surf.

At same point as described and located above in BC 23.

Collections include:

- Siphonalids, large, under boulders.
- Chitons, many spawning.
- "
- "
- Astrea unicornis, Heavy Top.
- Haliotis cracherodii
- " fulgens
- Purpura, winged
- ", or drills, plain.
- Norrisii norrisii
- Spirochelin, small, slender.
- Clam, small.
- Hybolodus
- Bullbrauch
- Horn, red, under boulder.
- Encrustations on gastropods.

Collector

Leo G.Miles

Collection BC 25 (BI 1) [illegible], B.C.
La Playita

May 2nd, 1952

Low Tide 10.15 AM, 0.5' High [illegible].

North of [illegible] 2.5 miles, or [illegible] mile north of LA PLAYITA, just north of [illegible], on rocky coast, of boulders and bedrock of various kinds, especially lava; some sand.

See also BC 14, BC 23, BC 24.

Collections include:
Ischochiton conspicuus, in various ages and sizes, in colonies on smooth rounded boulders.
Mopalia sp., large.
Chiton
Chitons
Acmaea patina [illegible], - blue inside, flattish.
Acmaea sp, ribbed small.
Fissurella volcanoe.
Lottia gigantea
Homalnoea virescens? Bubble Shell, small; in numbers in Zones 1 & 2 with Algae around boulders, at edges of pools, most numerous where sand and silt meet rock.
Haliotis cracherodii, small.
Haliotis fulgens, small. Beach well picked over.
Astraea unicornis
Tegula gallina, speckled turban.
Acanthina?
Chaena?

Collector

Lee O. Miles

Collection DC 26 (BM 2) NANAIMO, B.C.
In Playita

May 3rd, 1952

Low tide 11.00 AM of 0.5' Heavy surf.

Collected on same site as in DC 26 and others, but also in sandal area farther south toward light.

Collections include:

Mopalia

Ischnochiton conspicuus - small specimens.

Chiton
*
Dubble shells - Hominoe?

Pecten valves

Acmaea
Acmaea
Acmaea
Haliotis rufescens, small. Area picked over by natives.

Haliotis cracherodii, small Area picked over.

Acanthina?
Ptorcytis nuttalli.

Tegula ligulata?

Collector

Lee O.Miles

Collection BC 27 (EM 3)

ENSENADA, B.C.
Santo Tomas

May 4th, 1952.

Low tide at 11.30 AM. Surf moderate.

South along main highway to SANTO TOMAS VALLEY; at foot of entering switchbacks, dirt road down valley to west to lagoon at closed mouth; north along coast to Fish Camp south side of Santo Tomas Point. Collected on south of point; then returned to old camp site half way back.
Cliffs at both collecting areas, high and rocky except for upper 10 or 12 feet, which is alluvial. Immediate fore shore, gravel and cobbles, some sand. Most of intertidal zone is loose boulders on bed rock, much of which is exposed. Much conglomerate.
See also BC 11 and 15.

Collections include:

Encrustations on Tegula
Chama?
Cowrie shell - Zonaria spadicea
Haliotis cracherodii; small to medium large.
H. fulgens; tiny only.
Acanthina
Lottia gigantea
Star Fish - Pisaster sp.?
" " - large pedicels
Pateria
Anomia
Astrea undosa
Pterynotus carpenteri - Carpenter's Rock shell.
Pterorytis nuttallii - Purpurea?
Chiton
Chiton
Acmaea scabra, juvenile.
Erato vitellina
Tegula
Norris~~s~~ia norrisii
Acanthina?, 3 stripes, small.
Thais-like, 2"-3", orange inside.
Crab, large heavy claws, black tips.
ALGAE - on Lottia gigantea
" - on Acmea scabra.

Collector

Lee O.Miles

Collection BC 28 (EN4) ENSENADA, B.C.
La Playita

May 5th, 1952

Low tide at 12.00 M, 0.7' Low surf.

Off the point at LA PLAYITA, north of ENSENADA about 2 miles. Boulders, cobbles and gravel on bed rock, exposed; with much sand washing in at margins of boulder field. Volcanic.

Collections include:
Astrea undosa, small to medium.
Pterynotis carpenteri, "Murex", fine specimens.
Drills
Basket shells
Haliotis cracherodii, small to medium
Haliotis fulgens, small.
Ischnochitona conspicuus.
Chiton
Chiton
See also BC 1,23, 24.

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Collection BC 29 (EN 5) ENSENADA, B.C.
La Playita

May 6th, 1952

Low tide at 12.30 PM. 0.8 ' Low surf.

Same as above BC 28, and further out.

Collections include:
Astrea undosa
Pterynotis carpenteri)
Drills) See specimens # 400 - 403.
Basket shells)
Cracherodii (Haliotis)
Haliotis fulgens
Chitons
Cjitons
Lottia gigantea
Pterorytis nuttallii (Hornmouth)
Acmaea digitalis
A. patina
Acmaea sp. Small, speckled margin.
Norrisia norrisii
Shell of red-spotted crab (like Cancer)

Collector

Lee O.Miles

Cloocction BC 30 (EN 6)

ENSENADA, B.C.
Punta Banda

May 8th, 1952

Low tide at 1.30 PM, of 1.3'. Low surf.

In small inlet or cove at south of base of PUNTA BANDA, South of ENSENADA and TODOS SANTOS BAY; dirt road, rough. Steep rocky shore, with boulder and cobble beach at base, with sand in small areas; bed rock much exposed. Granitic. Much ALGAE off shore, especially Kelp beds.

Collections include:

Kelletia shells at fisherman's camp.
Haliotis corrugata shells at camp.
H. cracherodii, all sizes, crevices.
H. fulgens, tiny only.
Acanthins lugubis
Thais emarginata
Acmaea digitalis
A. scabra
Lottia gigantea
Mopalia sp.
Ischnochitona conspicuus
Chiton
Nudibranch
Norrisia norris/ii

Land snails

Collector,

Leo O.Miles

Collection BC 31 (EN 7) ENSENADA, B.C.
San Ysidro

May 9th, 1952

Low tide at 2.00 PM of 1.5'. High surf.

From ENSENADA, south to SAN VICENTE; west down San Ysidro Creek to coast, north to Bird Rock and iron ore dump near (S.) Point Cabras. On rocks, at Zone 1 mostly.See also 8, 16,

Collected :
Tegula funebralis?
Acanthina lugubis
Lottia gigantea
Chiton, small, orange.
Nudibranch, yellow.
Hydroids
Mytilis
ALGAE - many present, an excellent place to collect.

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Collection BC 32 (EN 8) ENSENADA, B.C.
Gomez Beach

May 11th, 1952.

Low tide at 3.00 PM of 2.0'. Surf high.

Opposite mouth of Santo Domingo Creek, closed, ending in lagoon with rushes; seepage thro dunes to sea.
In Zone 1 only.
See also BC 3,and succeeding collections.

Collections include:

Acanthina lugubis
Tegula funebralis?
Littorine, striped.

Collector,

Lee O.Miles

Collection DC 33 (Ser 9) [illegible], D.C.
Rosario.

May 1[illegible]th, 1952

Low tide at 3.45 PM of 2.3'. Open to oceanic surf.

From [illegible] on main highway part Colonia V. Osorvano, across flats, [illegible] Quintin Bay, to [illegible] on Rosario River ocean shore, travelled it to dirt road taking off to south and west to [illegible], the north and enclosing [illegible] Bay. Beach with alluvial silts, cobbles, gravel and sand on bed rock; some protection from sun to north and northwest.

Coll ections at [illegible] tide levels:

Barns californica?

Juton fortivus Hinds

Fossil of above.

Pidlock - fossil.

Acanthina lugubris

Thais emarginata?

Acanthina - Smooth dark shells.

Littorina, bandel, small.

Should be an excellent collecting ground at a minus low tide. Good camping sites.

Collector,

Leo G.Hilos

Collection No 34 (No 10) BURRARD, B.C.
La Flayita

May 25th, 1952.

Low tide at 8.00 AM of -0.5' Moderate surf.

South of La Flayita on main highway to sign MI 101; then west to beach and 100 yards south to point with loose boulders on bed rock. Base conglomerate.

Collections include:
Isognomon compiensis
Chiton - mottled brown.
Tegula sp.
Slim gastropods, 1" long.
Haliotis cracherodii. 1, 2" long.
H. fulgens, ½" to 2" long.
Crab, heavy claw
Crab, small "mimulus".
Crab, small Cancer?
Fish, small, pow nose, large fins.
Knife shells.
Egg Case, spiral, composition like sinto cases.
Acanthina sp.
Gastropods, small.
" "
Barnacle on Oysters.

ALGAE.

Collector,

Leo O.Miles

Collection DT 95 (DT 13) MISHAMA, B.C.
Pacific Beach

May 16th, 1952

Low tide at 9.00 AM of -0.3' Protected from surf.

"

South of MISHAMA to NANAIMO, west past Cecilia Gun Club, to south end of TOWN CENTRE BAY, up to top of MYRTA BANDO, wrap along top to neck above Fish Camp, south down hill to Camp on cove on south side of Point.
See also DT 20.

Collection on boulders and bed rock:

Haliotis kamtsc
H. cracherodii
Crabs, heavy jaws
Star Fish, heavy spines.
Drill
"
Tegula
Littorina, green, worn spire.
Crab, tiny, "Alaskan"
Brato?
Dalibrunchs, brown-orange.
Chiton?
Lodmochiton conspicuus
Acmaea sp.
Tonicia?
Acmaea, small, ribbed.
Mussels

ALGAE - Fucus-like, green, with pneumatos.

Collector,

Leo G.Miles

Collection '48 - 1 ENSENADA, B.C.
La Playita

March 22nd, 1948.

Taken on rocks of point just north of La Playita, about two miles north of Ensenada.

Collected:

Star Fish - Pisaster giganteus capitatus.

Octopus bimaculatus, 24" across.

Cuttle Fish, 1' long.

Eel, 30" long.

Crayfish, 8" long; juvenile. Panulirus interruotus.

- - - - - - - - - - -

Collection '48 - 2 ENSENADA, B.C.
La Playita

March 23rd, 1948.

Taken on same point as above, but further out as well.

Collected:

Norrisia norrisii; green at umbilicus.

Wavy Top Shell; Astraea undosa, Wood.

Tegula.

Collector,

Lee O.Miles

Collection '48 - 3

ENSENADA , B.C.
La Playita

March 24th, 1948.

Taken on rocky point at La Playita, several miles north of ENSENADA, ,same as 2 previous collections, but continuing further north to more exposed (to open sea) beach; still rocky, but with much washing loose fine sand.

Collected :

Haliotis fulgens

H. cracherodii.

Same as before.

- - - - - - - - - - - - -

Collection '48 - 4

ENESNADA, B.C.
South sand beach.

March 25th, 1948.

Taken on bay beach of clean fine sand, open to swells from SSW and West, wide and hard packed.

Collected:

Wedgies

Pismo, small only. Tivela stultorum.

Cup and Saucer Limpets ; Crucibulum sp.

Pecten valves

Cockles,

Etc.

Collector,

Lee O.Miles

Collection '49 - 1

ENSENADA, B.C.
San Quentin -
Laguna Santa Maria.

April 5th, 1949.

Taken on wide, hard sandy beach, clean, exposed to open sea.

Collected:

Pismo Clams - Tivela stultorum; many washed ashore.

Mussels - shell long, clean.

Mussels, - shell long, bearded.

Triton? - alive; orange with black stripes on body.

Barnacles, red; Balanus concavus pacificus, Pilsbry.

Also 2 ducks; should have had 6.

6 6 6 6 6 6 6 6 6 6 6 6

Collection '49 - 2

ENSENADA, B.C.
La Playita, N.

April 6th, 1949.

Taken on rocky beach north of La Playita, several miles north of ENSENADA; open to sea.

Collected:

Tegula

Littorines

Acmaea sp.

Lottia gigantea.

Volcanoe Keyhole Limpet.

Brittle stars, 3 species.

Leather Star.

Chitons, various.

Thais sp.

Collector,
Lee O.Miles

Collection '49 - 3
A & B.

ENSENADA, B.C.
San Quentin Mole.

April 8th, 1949.

A. Taken on sandy clam flats under and on the old pier at the old English Colony.

Collected:
On flats:
Pismo clams, a few; Tivela stultorum.

Macron kellettii, Adams. With much Algal growth on them.

On steel piers of steel rails;
Mussels

Sponges, especially an orange-yellow.

- - - - - - - - - - - -

B. At old mill, on rough lava:

Barnacles, large red - Balanus concavus pacificus, Pils.

Chitons, several.

Crucibulum sp.

Acmaea limatula, File Limpet.

Oysters.

Collector,

Lee O. Miles

Collection '49 - 4

ENSENADA, B.C.
Laguna Santa Maria, S.

April 9th, 1949.

Collected along sandy to cobbled beach from LAGUNA SANTA MARIA south as far as wide beach extends.

Collected:

Olivella on sand bar exposed at low tide.

Small spiral purole shells.

Nassarius?

Triton?

Hermit crabs in various kinds of shells.

Pismo clams near surface, breaking it. Tivela stultorum.

Sand dollars, with red barnacles. These in tide pool backs of sand bar exposed at low tide, buried flat to upright, moving from 6" to 10".

Donax?, a few.

Clams with concentric lines; thin, large.

Venerupis sp.

Washed Crepidula sp.

Crabs, buried in sand. Near 0.0' tide mark.

Collector,

Lee O.Miles

Collection '49 - 5.

ENSENADA, B.C.
La Playita, N.

April 11th, 1949.

Collected on rocks and bedrock near cliffs near Point Light north of La Playita, several miles north of Ensendda. In Zones 1, 2 and 3. Surf and tide kept me out of Zone 4 until I fell in trying to get some barnacles.

Collected:

Haliotis cracherodii.

Littorines.

Thais emarginata.

Chitons, various species.

Lottia gigantea, Owl Limpet.

Acmaea limatula, File Limpet.

Collector,

Lee O.Miles.

Collection '49 - 6

ENSENADA, B.C.
San Ysidro - Pt Cabras.

April 14th, 1949.

Followed the main highway, paved, south from Ensenada to San Vicente; then turned west and followed a dirt "road" down San Ysidro River to the coast, crossing and recrossing the stream and irrigation ditches many times. The canyon widens near San Ysidro and the coast, and the road mounts to the coastal bench. Turn north past Punta San Ysidro with its blow-hole, to the cove inside (South) Punta Cabras. The rocky points north of San Ysidro are volcanic.

Collected : Zones 1, 2 and upper 3.

Haliotis cracherodii, plentiful.

Lottia gigantea, huge specimens.

Acmaea limatula, File Limpet.

Thais emarginata?, large.

Tegula brunnea

T. funebralis

Tegula, white & brown markings.

Strongylocentrotus purpurea. Sea Urchin.

Mytilus sp.

Pisaster ochraceus.

Pisaster giganteus capitatus.

Note; saw no Haliotis fulgens, but saw many shells at fishermen's huts in village at mouth of San Ysidro.

Collector,

Lee O.Miles

Collection '49 - 7

ENSENADA, B.C.
San Ysidro, South.

April 15th, 1949.

To San Vicente, then west down the canyon of the Rio San Ysidro to near its mouth, where the road mounts north to the coastal plain, and a branch dirt road crosses the sandy arroyo to the coastal plain south of the river. Proceeded south on this road about two miles to a dry arroyo; walked down this arroyo two the beach. Nearly horisontal strata form the upper beach, dipping toward the sea, and much broken and undercut. The coastal plain is not over 25' above high tide mark. Below the rock upper beach, in places are small areas of clean sand.

Collected:

Zone 1 :
Littorines.

Zone 2 :
Turbans
Thais

Zone 3, upper edge :
Lottia gigantea
Volcanoc keyhole limpet

- - - - - - - - - - - - - -

Collection '49 - 8

ENSENADA, B.C.
La Playita, N.

April 18th, 1949.

Taken at rocky point just north of La Playiya, described in other collections.

Taken:

Black Keyhole Limpet.

Haliotis fulgens, small.

Haliotis cracherodii.

Astraea?

Collector.

Lee O.Miles

M 73-238

Collection M 73 - 49 TOMALES BAY,
Oyster Cove south.

August 9th, 1949; from 5.00 AM - 8.00 AM.

Low water at 6.30 AM; minus 0.9.

Protected bay shore south of TOMALES BAY OYSTER CO beds, as follows:
A. Blue clay beds shallowly overlain with sand and gravel.
B. Sand bar with slight admixture of silt.
C. In gravel and small boulders with some sand and silt.
D. On small boulders and large gravel in Zones 2 & 3.
E. Silt and sand bottom of Zone 4.

Collections include:
A. Zone 3-
Ulophaca
B. Zone 2 -
Tagelus californianus; only dead specimens found in 1949; in 1948 many live were taken.
Worms
Shrimp
Sea Anemone
C. Zones 2 & 3 -
Tapida staminea.
D. Zones 2 & 3.
Saxidomus nuttalli.
Sponge, orange.
Sponge, yellow.
Mopalia ciliata
Ostrea lurida
Scaphopoda dira
Acanthina spirata
Urosalpinx sp
Mussles
Tunicate ?

E. Zone 4 -
Lyonsia californica.

Floated ashore, many Aurelia.

Collector

Lee O.Miles

Collection M 74 - 49 POINT ARENA.

August 20th, 1949; from 3.30 PM to 5.00 PM.

Low water at 4.00 PM; 0.4 feet. Temp. at 4.00 PM of surface water, 13.0 Cent.
On rather flat roof, in tidal pools of Zones 1 & 2, especially under loose boulders in those pools.

Collections include:

Tegula funebralis, many.
Tegula brunnea, few.
Thais emarginata
Nepelia, several species.
Other chitons
Leptasterias sp. Plentiful.
Diadema aspera.
Aemaea pelta
A. digitalis
A. scabra
Pododesmus

Two red coralline encrustacians on rock.
Small red Sea Anemone.
Brittle star .

Taken to indicate range if marginal in distribution.

Collector

Lee O Miles

Collection M 75 - 49. POINT ARENA.
Reef.

August 21st, 1949; from 3.30 PM to 5.00 PM

Low water at 4.15 PM, about 0.0 because of surf .

Collected in niches similar to those collected yesterday, but including Zones 1, 2 & 3.

Collections include -

Acmaea scabra	Zone 1.
A. digitalis	Z 1 & 2
A. mitra	Z 3
A. pelta	Z 2
Crepidula nivea	Z 2 in borer's holes in soft shale.
Sipunculid worms	With above.
Other worms	" "
Green anemone	Z 2 & 3
Bryozoa	Encrusting rock.
Coralline	" "
Haliotis rufescens	On rock in open, Zone 2.
Pododesmus	Zone 2.
Chitons	Zones 2 & 3 mostly.
Several genera.	

Collector

Leo O.Miles

Collection M 76 - 49

POINT ARENA
Reef

August 22nd, 1949; from 5.00 AM to 8.30 AM

Low water at 3.00 AM; minus 1.0'; surf medium high.

Collected on flat reef gullied into runs and tidal pools; most collections in Zone 3. Same reef as M 74 & 75.

Collections include -
All in Zone 3.
Haliotis rufescens; plentiful in below medium sizes.
Haliotis wallalensis; few.
Diadora aspera; plentiful.
Achyloe vittata (Halosydna lordi) commensal with above.
Pododesmus sp.
Coralline encrustations on rock.
Mytilus californianus
Mitella sp. (Goose Barnacle)
Tegula brunnea; more plentiful than in Z 1 & 2.
Searlesi dira.
Calliostoma costatum
Acmaea - various.
Isopods.
Hydroids.
Sponge .
Chitons -
Mopalia
Lepidochiton
Ischnochiton
Cucumaria miniata
C. sp?
Nudibranchs
Hoppers

Collector

Lee O.Miles

Collection M 77 - 49

BODEGA BAY;
Jetty pier sand bar.

August 23rd, 1949; from 5.00 AM to 7.00 AM.

Low water

This sand bar is nearly clean sand except in a few small areas where silt has accumulated. It becomes exposed in toto at plus 1.0 foot, half at 0.5 foot. It lies at the inner or west end of the jetty-inclosed channel into Bodega Lagoon.

Collections and observations were made on:

Polinices lewisii; observed devouring half-grown clams, all the following species, at depths up to twice the Polinices' own diameter. Many of them had a portion of foot &/or mantle folded into a siphon-like semi-tube, apparently functioning as such, breaking thro the surface into the air.
Schizothaerus nuttallii; half grown.
Paphia sp?; juvenile.
Cardium corbis; near the surface; mostly young.
Tellina bodegensis; occasional.
Macoma nasuta.
Olivella biplicata; freqhent.
Octopus; frequently stranded on this bar.
Olivella pedroana occasionally; plentiful below Zone 4.
Solen sicarius; occasionally; dredged with above, off shore.

Collector

Lee G.Miles

Collection M 78 - 49

SALMON CR. ROCKS
N. of Creek.

August 24th, 1949; from 6.00 AM to 8.30 AM.

Low Water at 5.00 AM; -0.9 foot; Temperature of surface water at 8.00 AM was 11.5 Cent. Cloudy.
Collections made in Zones 1, 2 & 3 only, because of surf. On "open outer coast" but with much protection to the zones collected by reefs and outer rocks. The coast here at 0.5 miles north of the mouth of SALMON CREEK (Sonoma Co.) is rocky, stream with loose boulders up to 20 feet in diameter, with much fine granite sand.

Collections and observations on:

Zone 1 & 2
- Orchestoidea - In and on sand and flotsam.

Zone 2
- Small black gastropods on algae.
- Coralline, brown.
- Coralline, red. Also in Zone 3.
- Shrimp - hump-backed.
- Isopods on brown Algae.
- Isopods on Eel Grass. 2 species.
- Segmented worms.
- Jelly Fish.

Zone 3
- Sponge, red mat.
- Coralline, red.
- Sponge, brown mat.
- Sponge, yellow stalked cups.
- Bryozoa on Algae.
- Nudibranchs -
  - Small red on broad leaf Algae.
  - Large yellow, black warts.
  - Large, flowered red tips in cream.

Littorines, acmaea, Tegula, 7c, as usual.

Collector

Lee O.Miles

Collection N 79 - 49

BODEGA BAY
Dredge, outer bay.

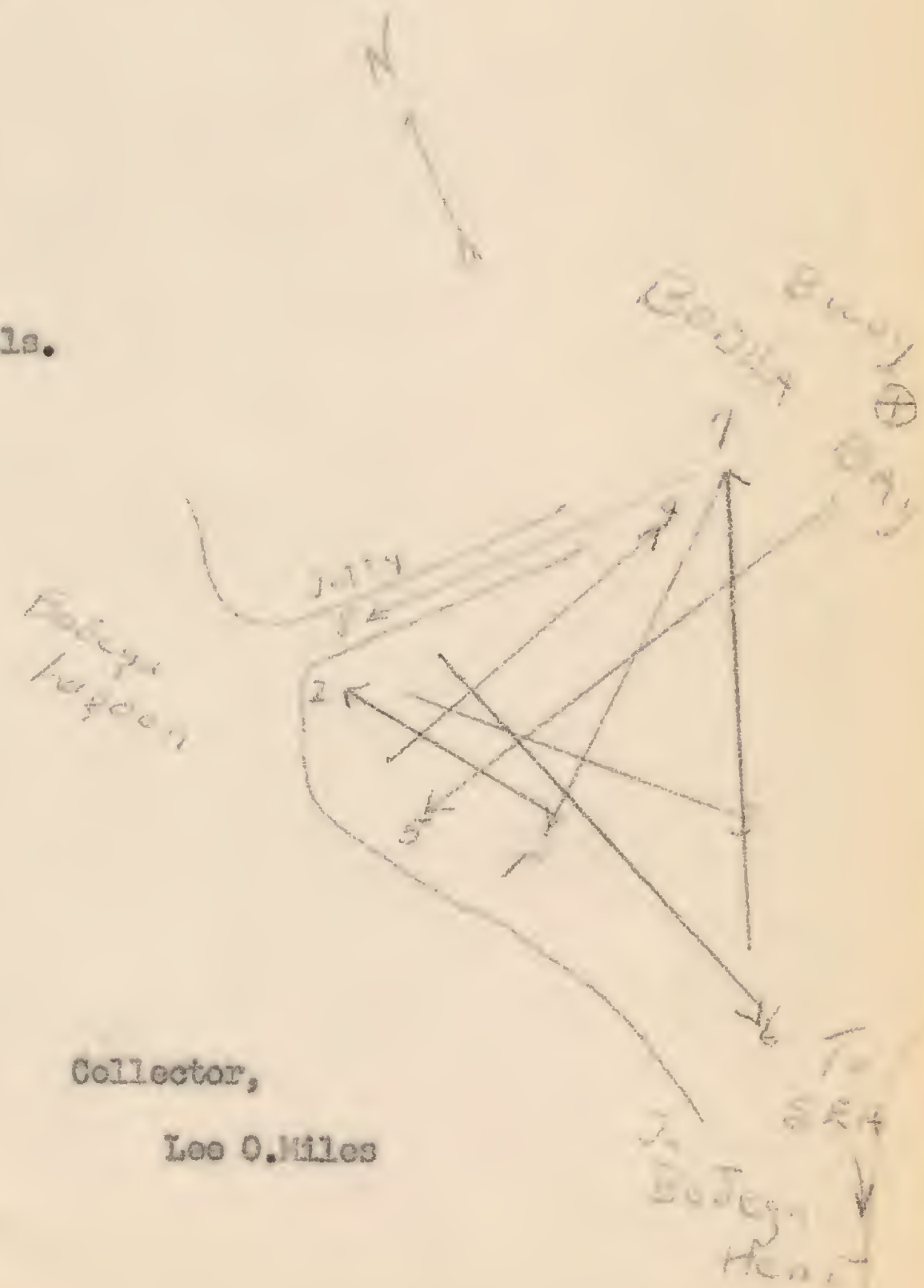
September 29th, 1949; from 11.45 AM to 1.45 PM.

Low Water at Noon; plus 3.4'. Temperature at 11.45 AM, 12.0 Cent; at 1.30 PM, 11.0 Cent. Effect of tide, outflow from Lagoon. Clear; gentle breeze at 11.00AM, to stiff wind from N.W. by 12.30 PM.

Dredging from Salmon trawler "Janice", Captain Lee Morris; just between Jetties, Bodega Harbor entrance, and outside them toward BODEGA HEAD, in Outer Bay. All bottoms gray sand, depths from 1 to 3 fathoms.

Collections include:
Bottom samples.

Dredge # 1 - See sketch below.
  Olivella biplicata
  O. pedroana
  Nassarius, 2 species.
  Actaeon punctocoelata
  Cardium corbis, juvenile.
  Shrimps, several species.
  Cancer, juveniles.
  Isopods t
  Dendraster excentricus - juvenils.
  Flounder.
Dredge # 2 -
  Same as above, plus
    Pycnogonum
    Small worms
Dredge 3 -
  As above
Dredge 4 -
  As above
Dredge 5
  As above
Dredge 6 -
  As above, plus Fish.
Dredge 7 -
  As above , plus
    Bryozoa on Algae
    Pisaster brevispinis
Dredge 8 -
  As above # 3.



Collector,

Lee O.Miles

Collection M 80 - 49 SALMON CREEK BEACH
S. from mouth.

October 12th, 1949.

Collected on beach in flotsam from a Southeaster of several days duration.

Collected -

Bryozoa on Algae, especially on Kelp.

Hydroids similarly.

Observed -

Many Siliqua patula shells in broken condition but evidently fresh, indicating beyond much doubt that this Pelecypod is found here, though below minus low tides, since none is dug.

Lee O. Miles

Collection M 81 - 49

MUSSEL POINT
Sonoma County.

October 20th, 1949.

Low Water at 4.00 PM - plus 0.1 ft. Moderate surf.

Open outer coast; granitic rocks, much eroded, little sand or fragmented rock.

Collectors,
Lee O.Miles
Jack Copsey.

- - - - - - - - - - - - - -

Collection M 82 - 49

POINT ARENA
Reef.

October 21st, 1949.

Low Water at 4.40 PM - minus 0.6 ft.

Moderate surf. Open outer coast. Flat stratified sedimentary rocks, much gullied, little loose rock or sand. Exposed at mid tide.

Collectors
Lee O.Miles
Jack Copsey

Collection M 83 - 49

BODEGA BAY
Jetty pier sand bar.

October 22nd, 1949.

Low Water 5.36 PM - minus 1.1 ft.

Collected with Gerry Williams on the sand flat at the inner end of the Bodega Inlet. See M 77 - 49 .

Collected and observed -

Polinices lorisii - 26 specimens were taken. Of these 20 were feeding just below the surface (Zone 3)all on half-grown Schizothaerus nuttallii. The foot folded about the victim, folding its neck and in many cases (7), partially severing it. Much mucus was exuded, possibly to assist in smothering the clam and drawing it toward the surface, as had been done. In 6 cases, one valve of the bivalve had been broken. In only 9 instances was the shell penetrated by rasping a hole in it, and this was not always near the umbone. This hole is only roughly circular and is not as neatly conical as where done by Urosalpinx or Murex.

Cardium corbis - mostly juvenile, near the surface, in Zone 3.

Macoma nasuta - Zone 3.

Olivella biplicata. At or so near surface its burrowings are conspicuous.

Octopus - 2, in shallow pools.

Schizothaerus nuttallii - the type mollusc of this niche and o f the station in general.

Phoronpsis (viridis?)Common in restricted beds, Zones 2 & 3.

Callianassa Zone 2, inside the lagoon.

Dendraster excentricus Zone 2, lagoon flats, below Callianassa, tidally. On or practically on the surface.

Collectors

Gerry Williams

Lee O.Miles

Collection M 84 - 49 BODEGA LAGOON
at Meredith's Fish Dock.

November 17th, 1949.

Low water at 3.00 PM - minus 0.1 ft.

On sand flats immediately north of Meredith's Dock, in shallow bay at low tide, at outer Zone 3, inner Zone 4 in a fairly well-defined belt. In sand heavily loaded with mud, covered with about 4 inches of sticky, slimy silt and ooze.

Collected were -
Saxidomus nuttallii, the type mollusc of this niche.
Acmaea limatula - plentiful.
A. scabra - higher up beach than above.
A. persona - only on rocks of a small pier nearby .

Collectors
Lloyd Williams

Lee O.Miles

- - - - - - - - - - - - - - - - - - - -

Collection M 85 - 49 SHIPTAIL GULCH
Bodega Bay, outer.

November 18th, 1949.

Low water at 3.50 PM; minus 0.8 feet.

Among rocks and boulders of protected inner coast; a heavy wash of sand on much of the shore; collections made south of SHIPTAIL GULCH about ½ mile north of ESTERO AMERICANO.

Collections include -
Patiria miniata - abundant.
Pycnopodia helianthoides - many.
Dermasterias imbricata - occasional.
Protothaca staminea - abundant.
Acmaea paleacea - on Eel Grass.
A. incessa - on Egregia.
All in Zone 3, or in tidal pools of Zone 2.

Collector

Lee O.Miles

Collection N 86 - 49

SHELL BEACH
Sonoma Co.

November 19th, 1949.

Low Water at 4.35 PM; minus 1.4 feet.

Outer coast, semi-protected by outer reefs and stacks. Rocks vary from pebbles to 30' in diameter, on bed rock.

Collections include-

Acmaea fenestrata - plentiful in colonies. Seeks sand level of smooth boulders in Zone 3, sometimes is even buried in sand on such boulders. Usually out of sun.

Acmaea in commoner species abundant in usual locations.

Chitons - several genera.

Nudibranchs - occasional.

Blennies and Gobies.

Pododesmus - occasional

Black worms in tube masses on rocks, where surf strikes with some force. These worms color black any medium in which placed.

Sponges - A beautiful display of various sponges, particularly in one grotto between large rocks, in a tidal pool, Zone 3.

Haliotis rufescens.

NOTE. This is a good study beach, accessible and safe to work, and with an excellant variety of specimens. Its location in a State Park has done little to reduce any but the usual edible clams, mostly Protothaca staminea, in number. Abalone (Haliotis rufescens) can still be observed occasionally as high on the beach as Zone 2 (after storms).

Collector

Leo O.Miles

Collection M 87 - 49

CAMPBELL RANCH
North Cove.

November 20th, 1949

Low Water at 5.20 PM; minus 1.7 feet.

On the ocean side of Campbell Ranch, at the north or Spring Cove; outer coast, protected by its own stacks and reefs. Rocky coast (granite and sedimentary, superimposed) with a small cove of sand.

Collections included -
Haliotis rufescens
Acmaea mitra
Corllines
Calliostoma costata.
Tegula brunnea and funebralis
Isopods from Egregia.
Chitons.

Collector
Lee O.Miles

- - - - - - - - - - - - - - - - - -

Collection M 88 - 49

"JEFFERSON"
Off Pt.Ross.

November 21st, 1949.

Drag boat "JEFFERSON", Captain John Lampi, and thro courtesy of Mate Lloyd Williams, dragging for bottom fish at 120 fathoms off Fort Ross to Bodega Head.
Net brought aboard a rock, attached to dead kelp, so perhaps not from bottom. This rock had been bored and clams were present, not alive, in the borer holes.

Lee O.Miles

Collections M 89 - 49. BODEGA LAGOON
Campbell Cove.

November 30th and December 2nd, 1949

Low water 11/30 at 2.30 PM, plus 1.1; on 12/2, at 3.40 PM, 0.0'.

Collected on beach of lagoon at Campbell Cove and north ½ mile.
Sedimentary rock and deposits over porphyry; reefs with sand pockets and bars, with considerable silt.

Collections included -

Polinices lewisii - Occasional.
Cardium corbis
Macoma nasuta
Sanguinolaria - shell only, fresh.
Protothaca staminea - abundant.
Schizothaerus- abundant, much dug.
Saxidomus nuttallii -
Nudibranch - Triopho?
Cucumaria sp. White.
Crabs - especially Hemigrapsis.
Sea Anemones, several species.

Collector

Leo O.Miles

Collection M 90 - 49 HORSESHOE COVE

November 30, 1949.

Low water at 2.30 PM, plus 1.1 foot.
Surf high, following storm. Much litter on beach.

Collected in litter on beach.

Collections include -

Hydroids - many, and of several kinds.

Haliotis shells, many.

Other shells from rocks at entrance to cove.

Mytilimeria nuttallii - in its usual compound ascidia.

Collector Lee O.Miles

- - - - - - - - - - - - - - - - - - -

Collection M 91 - 49. SHELL BEACH

December 3rd, 1949

Low Water at 4.06 PM, minus 0.4 feet. Surf moderate.

Rocky protected outer coast, with boulders and coarse gravel.
Collected at south ends of rocks below sand bar. See M 86.
Collections include -

Chitons
Entodesmus
Olivella
Tegula
Diadora aspera
Acmaea incessa & others
Callicstoma sp. Not costata.

Collectors
The Copseys Lee O.Miles

Collection M 92 - 49 OFFSHORE, BODEGA I'D.

December 10th, 1949.

Taken by Crabber in 15 fathoms of water about ½ miles S.S.E. of BODEGA ISLAND ; in crab pot.

Collection -
Crab - Mimulus ?
File Fish - Xenochirus triacanthos

Leo O.Miles

- - - - - - - - - - - - - - - -

Collection M 93 - 49 RUSSIAN RIVER
Point North of mouth.

December 13th, 1949

Low Water at 11.50 AM, plus 2.0 feet. Collected about 2.30 PM

About 1 mile north of the mouth of the Russian River, at first rocky point; about same distance south of "E" Beach.

Collected -
Acmaea fenestrata in lowerZone 2 and Zone 3, on smooth clean fine-grained green stone, on shaded side, near or in the edge of the sand. The most abundant Acmaea in this niche, but not for the beach.

Isopods - large, not on Egregia, near tide pools, Zone 2.

Collector,

Leo O.Miles

Collection M 94 - 49 OFFSHORE - "JEFFERSON"
Off Bodega Head.

Decembember 14th, 1949.

Gale from Southeast, high sea. Made one drag at 40 fathoms off TOMALES HEAD, then snagged net on rocks and had to come in.

Collections included -

Rays - juveniles; many large specimens taken by drag.

Tom Cod

Canary Sole

English Sole

Blow Fish, coppery, with belly pattern; many taken.

This drag brought in 200 lbs of Cancer.
Petrale and Sand Dabs were scarce.
Collector Lee O.Miles
Courtesy LLOYD WILLIAMS.

- - - - - - - - - - - - - - -

Collection M 95 - 49 HORSESHOE COVE
Rocks to north.

December 16th, 1949.

Low Water at 2.55 PM, minus 0.7 ft.

Collected in tidal pools and on rocks (porphyry) just north of the cove.

Collected -
Octopus
Limpets, ass't'd
Haliotis rufescens
Diadora aspera
Worms, black, in massed tubes.
Gadinia reticulata

Collector

Lee O.Miles

Collection M 96 - 49

RUSSIAN RIVER
North of Mouth.

December 17th, 1949.

Low Water at 3.40 PM, minus 1.3 feet.

Collected on the rocks and in the tidal pools 1 mile north of the mouth of RUSSIAN RIVER to ½ mile south of "E" BEACH. Some coarse granite sand and some greenstone boulders. See M 93.

Collections included -
Henricia
Pisaster
Octopus
Chitons, several species and genera
Acmaea fenestrata - abundant in its niches.
A. mitra - large unwarn specimens
A. paleacea - on Eel Grass.
Mimulus foliata - small, leaf shaped.
Cling Fish
Other small fish
Nudibranchs, several.
Hydroids, several
Small gastropods, especially in Zone 2.
Isopods, several.
Shrimp in pools.
Haliotis rufescens not observed this trip, unlike M 93 49.

A good collecting beach, but much frequented by public, and entailing a considerable walk or a steep climb.

Collector

Lee O.Miles

Collection M 97 - 49

SHELL BEACH
North end.

December 18th, 1949

Low Water at 4.20 PM,minus 1.7 foot.

AN open outer coast given much protection by its fringing reefs an stacks. Bed rock covered by loose rocks from gravel size to house size, with much loose sand in spots. See M 86 - 49. On this occasion, collected toward the north end of the beach, away from most of the sand.

Collections included -

Sponge, red finger-like.
Sponge, dark red mat.
Compound Ascidea.
Chitons, a number of species.
Hydroids
Acmaea mitra - extra large, mostly encrusted.
Corallines on above.
Diadora aspera and
Commensal worm Apholoe vittata
All above in Zones 3 & 4.

See M 86 for other species present but not taken.

Collectors
The Copseys

Lee O. Miles

Collection M 98 - 49

DILLON BEACH
Anchorage Flats

December 20th, 1949

Low Water 7.20 PM, minus 1.7 feet.

At Dillon Beach, near Lawson's Boat Anchorage on the south side of SAND POINT; protected; sand flats uncovered at low tide, with a varying amount of silt. A channel through this flat carries quite a tidal current.

Collections included -

Zones 3 & 4 -

Thais lamellosa
Nudibranch - Dendronotus?
Macoma secta
Macoma nasuta
Macoma sp. - Notched shell.
Actaeon punctocoelatus
Cardium corbis
Crab, white - (In rocks near Stemple Creek)
Schizothaerus nuttallii

Floating in channel on tide, outgoing, over ribbon algae and beds of Schizothaerus.

Sponge - like tumble weed.
Tunicates - some singly, others in clumps as large as a football.

Not observed on this occasion but usually to be found here -

Nassarius fossatus
Tectibranch, black-brown.
Hermissenda
Cancer
Pisaster, several.

Collectors
Jack Copsey

Lee O.Miles

Collection M 99 - 49 HORSESHOE COVE

December 22nd, 1949.

Low Water at 7.30 PM, minus 1.1 feet. Moderate surf.

ON outer coast, rocky, given some protection by outer reef.

Collections made about 5.00 PM included -

A. From tidal pools on rock coast -
Chitons, various.

B. From beach, sandy, washed up -
Hydroids
Mytilimeria nuttallii
Entodesmus

Collector
Lee O.Miles

- - - - - - - - - - -

Collection M 100 - 49 BODEGA BAY
Jetty pier sand bar.

December 29th, 1949.

Low Water at 2.00 PM, plus 0.9 feet.

Collected on both sides the pier in DORAN PARK at the inner or west end of the Jetty - A., on bar just SE of Pier, at end of jetty, of nearly pure sand; and B., 200 yards inside the pier where silt accumulates on the sand beach.

Collections included -

A. Pugettia
Cancer antennarius
Cancer productus
Cardium corbis

B. Sanguinolaria nuttallii - rare on this beach.
Fish, buried to nose in slimy mud, laying its eggs on pieces of old shell.

Collector
Lee O.Miles

Collection M 101 - 50

TOMALES BAY
Nick's Cove

January 16th, 1950.

Low Water at 4.00 PM, minus 1.5 feet.

A protected cove in TOMALES BAY, itself protected. A sand-gravel beach with some silt and some small rocks.

Collections included -
- Sponges, two .
- Nudibranch
- Tegula funebralis
- Protothacus staminea - many color and marking variations.
- Ostrea
- Thais emarginata
- Worm, large, plumed, in tough long tube.
- Mopalia
- Jelly Fish
- Sea Anemone - in gravel, attached to small rocks, buried.

- -

Collection M 101.5

BODEGA BAY
Fish Docks

January 17th, 1950.

Collections were made from newly caught fish -
- From Rubber-lip Perch caught off DUSTY'S DOCK, 2 species.
- From Sole brought to MEREDITH'S DOCK by the "JEFFERSON", 1 species.

Collector

Lee O.Miles

Collection M102 - 50 BODEGA BAY
Jetty pier sand bar.

January 26th, 1950.

Low Water at 12.00 M, plus 1.1 feet.

Collected on both sides of the Pier in DORAN PARK, all in the Lagoon, on sand with a varying admixture of silt. See M 100.

Collections and observations included -
Jelly Fish - small; stranded.
Olivella bilplicata.Active, amorous, many just below water line.
Scale worm, on sand with above.
Plumed worm, in sand; many legs.
Plumed worm, thin, long, in sand.
Point worm - shaped like Urechis.
Fish - See M101.5, Buried in silted sand, depositing eggs on old Cardium corbis valve.
Olivella pedrosana - occasional.
Sanguinolaria nuttallii, empty shells, fresh.
Cardium corbis.
Shrimp
Brittle star, very small.
Octopus, stranded.

Above observed in Zone 3.

Collector Lee O.Miles

- - - - - - - - - - - - - - - - -

Collection M 103 - 50 HORSESHOE COVE

January 25th, 1950

Low Water at 11.00 AM, plu 1.6 feet.

Collected on sand beach in Cove. See M 90, M 95 and others.

Collected -
Entodesmus
Mytilimeria

Collector Lee O.Miles

Collection M 104 - 50 "JEFFERSON"
Drag at 50 fathoms

January 25th, 1950

Taken by Meredith Fish Co drag boat at an average depth of 50 fathoms, the "JEFFERSON", dragging off the FORT ROSS coast. Mud bottom.

Collections included -
Polinices sp - Thin shell and operculum.
Octopus sp.
Fish -
Hake
Sea Perch
Sand dabs

Collector Lee O.Miles thro the courtesy of Lloyd Williams.

- - - - - - - - - - - - - - - - - - - -

Collection M 105 - 50 BODEGA BAY
Jetty pier sand bar.

January 28th, 1950.

Low Water at 2.20 PM minus 0.2 feet.

Sand bar near jetty inner end. See M 102 and other previous collections.

Collections included -
Fish, various
Sanguinolaria valves, fresh.
Worms, various
Nudibranch - grey green.
Shrimp
Jelly Fish
Chitons - from rocks, Zones 1 & 2.

Collector

Lee O.Miles

Collection M 106 - 50

"JEFFERSON"
Drag at 40 fathoms

January 28th & 29th, 1950.

Taken on the above dates by Meredith Fish Copany's drag boat "JEFFERSON", off FORT ROSS, at depths averaging 40 fathoms. Mud bottom.

At 4.00 PM on these dates, temperatures averaged
Air 9.0 Cent. Surface water, incoming tide at Jetty, Bodega Bay, 11.0 Cent.

Collections included -

Fish parasite
Polinices sp. Thin shell and operculum.
Electric ray
Sting ray
Devil Fish
Pompano
Turbot sole - not common.
Polinices shell (like lewisii except lacking channel)
Worm commensal in umbilicus, and with Pagurus in shell.
Pagurus sp. in above shell.
Mediaster aequalis ?
Pisaster?

Excellent collections as boat was still sorting trash from commercial fish when it docked.

Collector
Lee O.Miles

Courtesy of
Lloyd Williams

Collection M 107 - 50 SHELL BEACH
South.

January 30th, 1950

Low Water at 3.15 PM, minus 0.6 feet. Air 8.0 Cent;
Surface water 10.0 Cent.
See M 86 and 97. SHELL BEACH, Sonoma County. Collected at south end of this protected outer coast.
Collections included -
Goose barnacles - red.
Ischnochitons
Lepidochitons
Cryptochiton
Haliotis rufescens
H. wallalensis
Pholadidea parva in shell of Haliotis rufescens.
Worms, same place as aboce
Diadora aspera and commensal worm Acholoe vittata.
Nudibranch
Acmaea fenestrata
A. mitra

Collector,
Lee O.Miles

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Collection M 107.5 - 50 "JEFFERSON"
Drag at 30 fathoms

January 30th, 1950

Taken by Meredith drag boat "JEFFERSON" off Russian River-Fort Ross coast, at depths from 30 to 54 fathoms. Muddy bottom.
Collections included -
Womrs in bottom clay brought up on doors of net.
Sea Whips, juvenile, in mud with above.
Mud sample sent to Allan Hancock Foundation.

Collector
Lee O.Miles
courtesy of Lloyd Williams

Collection M 108 - 50

SHELL BEACH North
Sonoma County.

January 31st, 1950.

Low Water at 4.00 PM; minus 0.9 feet.

Temperatures of air, 7.0 Cent.
Of surface water, 9.0 Cent. Both at 3.30 PM.

Collections made at the north end of SHELL BEACH, in the best-protected portion of this beach, with many stacks and large rocks just offshore. An outer coast, semi-protected.
See M 86 and M 97, alsoM 107.
Collections included -

Alcyonaria? Soft coral?
Shrimp
Worm in hard tubes.
Worms from old Pholad borings.
Acmaea fenestrata.
Margarites
Amphissa
Crepidula nivea
Pholadidae penita - from shale, Zone 3.
Hipponix antiquatis - same as above.
Platyodon cancellatus - with above.
Worms in a mass like cauliflower.
Chitons, various.
Encrustations, coralline, on A. mitra.

Collector,

Lee O.Miles.

Collection M - 109 - 50

SHELL BEACH North
Sonoma County

February 1st, 1950

Low Water at 4.30 PM, minus 1.1 feet.

Collected 1 mile north of foot of Park Trails. An outer coast, protected only by stacks and large rocks. Considerable loose sand in upper zones. See M 107 and M 108.

Collections include - Zone 4.
Hydroids
Hoppers on above
Worms, dark green, in calcareous mass of tubes; color all preservatives almost black.
Pholididae penita - boring in shale.
Worms from bore of above.
Chitons, various
Sipunculids
Strongylocentrotus franciscanus
Sucker Fish, under rock, Zone 3; curled up like lump blue mud.
Pagurus in Calliostoma shell.
Crab, hairy.
Compound Ascidea, red.
Acmaea mitra
A. fenestrata
Calliostoma costata
Goose barnacles, black.
Shrimp
Amphissa versicolor, Dall. Possibly other species.
Pelecypods present -
Mytilus californianus
Protothaca staminea

Collector

Lee O. Miles

Collection M 110 - 50

SHELL BEACH North
Sonoma Co.

February 2nd, 1950

Low Water at 5.00 PM, minus 1.1 feet. Surf high.

Collected at foot of Park trails to beach, thence north as far as second point of rocks. See M 109 and previous collections.

Collections included -

Brachiopod, Terebratulina sp.
Brittle Stars, under rocks in Zone 3.
Crab, hairy.
Pagurus in Calliostoma
Calliostoma costata
Thais lima
Margaritos
Purpura sp. ; small.
Shrimp
Segmented worms
Didora aspera; a large specimen, with
Acholoe vittata, commensal with above.
Nudibranch, pea size, on red sponge. Red.
Octopus.
Sponge, scarlet.
Sponge, purple.
Haliotis rusfescens
Hydroids
Chitons
Brittle stars
Hoppers
Protothacus

Collector

Lee O. Miles

Collection M 111 - 50 "JEFFERSON"
45 fathoms, off Salmon Cr.

February 2nd, 1950

Taken in 40 to 50 fathoms in drags off Salmon Creek coast, from BODEGA HEAD to RUSSIAN RIVER, by Meredith drag boat "JEFFERSON".

Collections included -

Shiner - small specimen
Cod fish - small specimen
Octopus
Mud from bottom at 40 fathoms, taken on doors.
Worms, various, in above.
Sea Whips, juvenile, in above

- - - - - - - - - - - - - -

Collection M 112 - 50 "JEFFERSON"
45 fathoms, off SALMON CREEK

February 7th, 1950

Collections included -

Aphrodite - Sea Mouse.
Tethys - sea Hare
Parasites off 28" Halibut.
Mediaster ?
Piasater ?

- - - - - - - - - - - - -

Collection M 113 - 50 "JEFFERSON"
At 100 plus fathoms.

February 8th, 1950

Taken at 100 to 115 fathoms of GUALALA RIVER, drag boat JEFFERSON.

Collections included -
Red Fish
Thorny or File fish
Knobby red Sea Star.

Collector Lee O.Miles

Courtesy Lloyd Williams

Collection M 114 - 50 "JEFFERSON"
Off Russian River

February 9th, 1950.

Drag boat "JEFFERSON", at 50 and at 115 fathoms, in drags off the RUSSIAN RIVER, northward.

Collections included -

From 50 fathoms average depth -
Skate egg
Shark egg
Lovenia cordiformis?- heart dollar, taken dead.
Polinices shell - no groove
Hermit crab in above.
Worms, ,commensal with above.
Hydroid
Nudibranchs Question - are the so taken on bottom, or afloat.
Polinices, thin shell.
Dermasterias sp

From 115 fathoms -
Paturia ?
Star Fish, knobby, red.
Lovenia cordiformis? Alive.

Collector
Lee O.Miles

Courtesy of Lloyd Williams.

Collection M 115 - 50 "F" BEACH
North of Russian R.

Collected February 10th, 1950

Low Water 12.00 M, minus 0.1 feet. Heavy wind and surf, Northwester.
Clear day.
Temperature of air at 12.30 PM, 10.4 Cent.
Of Surface Water, same time, 10.0 Cent.
Collected on Outer Coast, open, but afforded some protection by stacks, reefs and large rocks. See M 23 - 48.

Collections included -
Chitons, various
Pycnogonum stearnsi ?
Flat Worms
Isopods
Amphissa sp
Littorines sp
Tegula sp
Margarites
Haliotis
Mitrites juvenile

Collector

Lee O.Miles

Collection M 116 - 50

"E" BEACH
South & middle.

February 11th, 1950.

Low Water at 1.20 PM; minus 0.8 feet. Clear, Northwester strong, surf heavy.
Collected same beach as M 115 - 50 and M 23 - 48, but toward the south and in the middle. Because of the surf, only Zones 2 & 3 were explorable. Some coarse to fine sand in Zone 2 especially.

Collections included -
- Chitons, various
- Haliotis rufescens
- H. wallalensis
- Octopus
- Isopods
- Bhonny
- Cling Fish
- Amphipsa
- Littorines
- Gastropods, other.
- Solaster dawsoni (Small specimen) Not common in this area.
- Diadora aspera with encrusting sponge.
- Eel
- Nudibranch
- Crabs

Collector

Lee O.Miles

Collection M 117 - 50 STEWART'S POINT
Reef

February 13th, 1950; Low Water at 3.30 PM; minus1.0 feet;
February 14th, 1950; Low Water at 4.15 PM; minus 1.1 feet.

At STEWART'S POINT, at Richardson's gate, 37.0 miles north of Salmon Creek. Reef exposed at plus 1.0 foot tide, protected from sea by higher reefs and rocks. Bed rock channeled and with tidal pools. Rock sedimentary. Shale and sandstone.

Collections included - Hippomix antiquatis, Linn. Hoof Shell.
Slime Eel or "Hag Fish".
Haliotis rufescens - small to medium, in profusion.
H. wallalensis - occasional.
Chitons, various
Astronotis sertâliformis - star fish, occasional.
Pisaster ?
~~Cerpnual Ascidea~~, red-orange, lemon like sponge - Tethya aurantica var. californica de Laubenfels
Calliostoma costata, many.
Purpura sp.
Clams, small, white, from borer holes.
Nudibranchs
Brittle stars
Henricia sp.
Mitella sp.
Calliostoma, 3 color, beaded. Shell only.
Margarites
Amphissa versicolor, shell
Thais sp.
Tegula gallipo, Martyn. w/ T. montereyi ?

Collector

Lee O Miles

NOTE : Same specimens taken &/or observed on March 14th.

Collection M 118 - 50 "JEFFERSON"
at 20 to 50 fathoms

February 13th, 14th and 15th, 1950

Drag boat "JEFFERSON", at 20 to 50 fathoms off the coast
opposite SALMON CREEK to FORT ROSS.

Collections included -

Polinices lewisi, some with groove about spire, others plain rounded. Heavy shell and operculum.
Worm commensal with Hermit crab in above shells, or ocassionally in umbilicus.
Hermit crab in shell of Polinices.
Shrimp, red; in great profusion at surface, over acres, at this time.
Octopus
Turbot sole - not plentiful.
Other fish - saved small specimens of commercial bottom fish.
Shark, juvenile
Dermasterias
Pisaster ?
Patiria sp.

Collector

Lee O. Miles

courtesy of Lloyd Williams

Collection M 119 - 50 "JEFFERSON "
At 30 to 50 fathoms.

February 23rd and 24th, 1950

Drag boat "JEFFERSON" in 30 to 50 fathoms off the coast opposite SALMON CREEK to FORT ROSS.

Collections included -

Egg Cases on Pecten valve.

Polinices shells (heavy), with Pagurus?, hairy, large.
Acholoe vittata, worm in umbilicus of above, or commensal with Pagurus in shell.
Augur shell with small red Pagurus.

Sea Anemone on panel , instrument, of wrecked airplane.
Mud from same panel.

Octopus
Perch?, juvenile.
Astropecten sp.
Dover sole, also known as Slime Sole. Not always saleable.
Ling Cod, juvenile.

Nucula sp ; in mouth of Astropecten, being consumed.
Spindle shell, same as above.

Shrimp, red, samd as under M 118 - 50 .

Collector

Lee O.Miles

Courtesy of Lloyd Williams

Collection N 120 - 50 "B" BEACH
South

February 25th, 1950.

Low Water 12.15 PM, plus 0.6 feet. Moderate surf.

Collected on "B" BEACH, situated north of Russian River about a mile and a half. Because of tide, collected only in Zones 2 and 3, turning boulders. Much loose sand. See N 116, &c.

Collections included -
Nipponix
Entodesmus
Nudibranchs
Chitons
Isopods
Pholadidea penita - boring
Platyodon sp. "
Crepidula nivea - in bores.

Collector
Lee O.Miles

- - - - - - - - - - - - -

Collection N 121 - 50 Off POINT TOMALES
Off Bird Rock

February 25th, 1950

Thro the courtesy of Lee Morris of the salmon boat "JANICE".

Collection -
Parasites taken from inside ~~XXXX~~ cheeks of Cod .

Collector

Lee O.Miles

Collection M 122 - 50 STEWART'S POINT
Beach north of Reef.

February 27th and 28th, 1950

Collected on boulder littered bed rock of beach just north of Reef collected on M 117 - 50. Bed rock is much and shallowly channeled and Abalone are plentiful.

Collections included -
Chitons, various
Haliotis rufescens
H. wallalensis NOTE - The difference between the two Haliotis becomes readily recognizable with experience; but the difference between wallalensis and fulgens (northern and southern groups) is still questionable.
Diadora aspera
Acmaea insessa on Egregia. Hinds
Thais emarginata
Small gastropods
Haliotis Kamtschatkana, Jonas.
Small white clam in borings. Collector
Balanophyllia elegans, Verrill. Coral.

Lee O.Miles

- - - - - - - - - - - - - - - -

Collection M 123 - 50 CEMETERY COVE
Fort Ross north

March 1st and 2nd, 1950

Low Water minus 0.8 feet on both dates, at 3.30 and 4.00 PM resp.

Collections in cove and point between Fort Ross, north to Cemetery on Cliff edge above shore. Stratified Sandstone with a hard slate and limestone; much loose sand between boulders. An outer coast with some protection by reef and stacks.

Collections included -
Coral?
Brittle stars
Chitons
Calliostoma costata - many
Haliotis rufescens
H. wallalensis
Amphissa
Megatebennus bimaculatus Leal Collector

Lee O.Miles

Collection M 124 - 50 STEWART'S POINT
Reef and north beach.

March 13th, 1950

Low Water at 2.30 PM, minus 0.6 feet.

Collected on outer coast, semi-protected, as in M 117 and 122.

Collections included mostly Haliotis rufescens of all sizes, to complete a series for study.

Collector
Lee O.Miles

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Collection M 125 - 50 "JEFFERSON"
SSW of BODEGA HEAD.

March 13th, 1950

Drag Boat JEFFERSON saw of Bodega Head about 10 miles, in water from 30 to 50 fathoms. Mud bottom.
Collections included -
Octopus
Sea Biscuit
Sea Anemone
Nucula
Hydroids on Nucula and Cardium
Cardium 18 ribs (Possibly Venericardia crebricostata Krauss)
Aphrodite

Collector

Lee O.Miles

Courtesy of Lloyd Williams

Collection M 126 - 50

CEMETERY (Ruoff Family)
North of Fort Ross

March 14th, 1950

Low Water at 3.00 PM; minus 0.6 feet.

At CEMETERY BEACH, a rocky point and rocky cove partially sheltered by the same, north of FORT ROSS. See M 123 - 50.

Collections -

Haliotis wallalensis
H. rufescens
Henricia - an unusually large specimen.

Collector Lee O.Miles

- - - - - - - - - - - - - - - - - -

Collection M 127 - 50

"JEFFERSON"
SSW BODEGA HEAD, 80 fathoms

March 21st, 1950

By the drag boat JEFFERSON about 12 miles SSW of Bodega Head in 75 to 90 fathoms of water.

Collection included -

Polinices sp.
Polinices lewisii shell and
Pagurus ? in above.
Octopus
Flounder ?
Ptilocereis ? Sea Feather
Chrysodomus tabulatus - shell and hermit crab.

Many Rex Sole, a commercial fish, taken in same hauls.

Collector Lee O.Miles

Courtesy of Lloyd Williams.

Collection M 128 - 50

DILLON BEACH
Anchorage Flats

March 23rd, 1950

On muddy sand flats south of anchorage used by Lawson's at DILLON BEACH.

Collected -
Sanguinolaria nuttallii Conrad- An unusually large specimen.

Collector
Jack Copsey

- - - - - - - - - - - - - - - - - -

Collections M 129 - 50

BODEGA BAY
Flats west of Dusty's

March 22nd, 1950; rec'd April 27th, 1950

On muddy sand flats in BODEGA LAGOON, west of Dusty Rhodes (Fish dock) on what is locally known as "The Island". Exposed only at low tide.

Collected -
Sanguinolaria nuttallii Conrad - dug by Anette Doi.

Protothaca ?; not staminea ? By Lloyd Williams, at same site as above.

Collector

Lee O. Miles
Courtesy of Anette Doi and Lloyd Willi ams

Collector M 130 - 50 OFF BODEGA HEAD
Salmon boat.

June 29th, 1950

On Salmon brought to Dusty Rhodes dock in BODEGA BAY by various salmon-fishing boats; common. Taken at 15 fathoms by trolling, off BODEGA HEAD.
Collected-

Copepods - with eggs; found in groups on all salmon, usually just above anal fins.
Pycnogonid - with above, rarely.

Collector

Lee O.Miles

- - - - - - - - - - - - - - - - - -

Collection M 131 - 50 "JEFFERSON"
At 50 - 80 fathoms

July 6th, 1950

Drag boat "JEFFERSON" at from 50 to 80 fathoms, about 10 miles SSW of BODEGA HEAD.
Collected -
Egg cases on bladder-like floats, rooted in mud.
Two shapes. Some with attached egg cases, smaller
Brittle stars
Worm tube, calcareous.
Nucula
Cardium?
File Fish
Crytoconus carpenterinaous Gabb - Carpenter turret shell
Lopholithoides - box crab; male and female.

Collector

Lee O.Miles

Courtesy of Lloyd Williams

Collection N 132 - 50 "JEFFERSON"
Off Fort Ross

July 17th and 18th, 1950.

Drag boat "JEFFERSON" at 30 to 40 fathoms off FORT ROSS and RUSSIAN RIVER, on muddy bottom.

Collection included -
Skate eggs
Stylatula sp.
Polinices sp - thin shelled.
Eel, juvenile.
Octopus
Tellina bodegensis, half grown; reported to be common at this depth along this coast. Rare on beaches.
Sipunculid ?
Pagurus in Polinices shells (heavy shell like lewisii)

Collector
Lee O.Miles
Courtesy Lloyd Williams

- - - - - - - - - - - - - - - -

Collection N 133 - 50 PARTY BOAT
Off FORT ROSS

July 21st, 1950

Party boat "LIBERTY", Captain Roy Faught, Bodega Bay; took this specimen at about 12 fathoms, off the sawmill just north of FORT ROSS.

Collected -

Solaster stimpsoni Verrill - "Never seen on this coast before" report of old fishermen. Northen form, Oregon to north.

Collector

Lee O.Miles
Cortesy of Roy Faught.

Collection N 134 - 50 "JEFFERSON"
Opposite FORT ROSS

July 25th, 1950

Collected by the Drag-boat "JEFFERSON" opposite FORT ROSS, CALIF.
in 30 to 32 fathoms.

Collections include:
Nudibranch, large, red top.
Cuttle Fish
Polinices lewisii
Polinices draconis
Lunaticina oldroydi
Hermit crabs in heavy Polinices shells
Stylatula

Collected by Lee O.Miles
courtesy of Lloyd Williams

- -

Collection N 135 - 50 HORSESHOE COVE

July 26th, 1950

Collected on the rocks at HORSESHOE COVE on the Gaffney Ranch near BODEGA BAY, California. In tidal pools just to the north of the cove, on a porphyritic headland, much eroded. See previous collections for further description of this beach.

Collections include:
Haliotis cracherodii, rare on this shore.
Chitons
Isopods

Collector

Lee O.Miles

Collection M 136 - 50 "JEFFERSON"
Off FORT ROSS

July 27th, 1950

Collected by the Dragboat "JEFFERSON" in 30 to 40 fathoms off FORT ROSS, CALIFORNIA.

Collections include:

Sea Biscuit, small	
Cuttle Fish	Specimen 211
Fish louse, large, white	
Dermasterias	Specimen 212
Hermit Crabs	

Collected by Lee O.Miles
Courtesy of Lloyd Williams

- - - - - - - - - - - - - - - - - -

Collection M 137 - 50 "JEFFERSON"
Off RUSSIAN RIVER

July 28th, 1950

Collected by the Dragboat "JEFFERSON" in 17 to 40 fathoms off the mouth of the RUSSIAN RIVER.

Collections include:

Deepsea Skate	
Electric Ray	
Chimera	
Skate Egg	
Shark Egg	
Octopus	
Hermit Crab, hairy, red	Specimen # 213
Polinices	
Eunaticina	

Collected by Lee O.Miles
Courtesy of Lloyd Williams

Collection M 138 - 50 PARTY BOAT
off FORT ROSS

July 31st, 1950

Collected by a party boat in 10 fathoms of water off FORT ROSS, snagged on a troll spoon. See M 133.

Collection :
Solaster stimpsoni.

Collected by Lee O.Miles
Courtesy of Lou Zellers.

- - - - - - - - - - - - - - - - - -

Collection M 139 - 50 "JEFFERSON"
odd POINT REYES.

July 31st, 1950

Collected by the dragboat "JEFFERSON" in 50 fathoms of water off POINT REYES and ABBOTT'S LAGOON, Calif.

Collections include:

Sea Biscuits	Specimen #	202
Ray, sharp nose	"	201
Slime Eel		
Midshipmen fish		
Mucula	"	203
Parasites on Halibut	"	204

Note - skin bleached under these parasites.

Collected by Lee O.Miles
Courtesy of Lloyd Williams

Collection M 140 - 50

STEWART'S POINT
California

July 31st, 1950

Collected at STEWART'S POINT on a circular reef about 200 feet across, of shale in nearly horizontal strata, gullied and with tide pools, surface exposed at 0.0 foot tide, with higher superimposed strata of sandstone on the perimeter, protecting from the open sea. Low water at 6.30 AM of 0.6 minus. Surf low.

Collections included:

Shrimp	Specimen 214
Orange (Shape and color)	" 203
Cryptochiton, asst'd sizes	
Kinnites gigantea	
Star fish, large red, long thin arms	
Patiria, ass'T'D sizes & colors	
Haliotis rufescens	
H. wallalensis	
Calliostoma costata	
C. sp. 3 color	
Amphissa	
Purpura foliata	
Crab	
Hipponix antiquatis	
Brittle stars	
Chitons	
Isopods	
Thais lima	
Pododesmus	
Pagurus	
Strongylocentrotus franciscans	

Collected by Leo O.Miles

Collection M 141 - 50

"FLORENCE"
off POINT REYES to
BODEGA HEAD.

August 2nd, 1950

Collected by the Dragboat "FLORENCE" in 42 to 45 fathoms of water off POINT REYES & BODEGA HEAD in the course of drags for bottom fish (Sole, flounder, etc.)

Collections include:

Astropecten?	Specimen # 206
Octopus	" 233
Squid, Opalescent	" 207
Tethys	
Shrimp	
Egg cases on bladders	
Rat fish eggs	
Rock Cod, baby	
Aphrodite, baby	
Eunaticina	

Cleared Smith Brothers' dock at 4.00 AM; Net in at 5.00 AM and again at 10.30 AM; dragged for about 2½ hours each time. Sea rough.

Collected by Lee O.Miles
Courtesy of Nick, Jake and Harold

Collection M 142 - 50 STEWART'S POINT

August 13th, 1950

Collected at STEWART'S POINT, California. For site description, see M 140. Low water 6.00 AM of minus 0.8 feet. Low surf.

Collections include:

Sponge on Anomia shell.	Specimen #	241
Zirfaea ?	"	239
Z. penita?	"	238
Crab, small, heavy claw	"	240
Saxicava ? Red siphon	"	235
Saxicava ? Black siphon	"	237
White clam, nestler	"	234

Amphissa
Crepidula nivea
Haliotis rufescens
H. wallalensis
Hinnites gigantea
Placyphorella velta
Chitons
Kathryna
Plumed worm, tough tube
Sponge on Hinnites gigantea
Thais emarginata
Brittle stars

Collector

Lee O.Miles
Jane Westfall
Pat Boas

Collection M 143 "JEFFERSON"
Cty L. Williams.

Aug. 20, 1950

Off POINT REYES in 40 fathoms, the drag boat "Jefferson" snagged a rock and picked up several loose cobblestones; and the drag boat "Martle" snagged wreckage of a wooden vessel nearby, pieces of which the Jefferson brought to the dock at Meredith Fish Company in BODEGA BAY.

Taken off and in this wreckage were:

Pholads like P. penita. Specimen # 250.

Worms

Sea Anemone

Crab; sent to AHF. Gallathoid?

Teredo; Specimen # 249

Mud

Coral? Sent to AHF.

Opalescent Squid.

Cuttle Fish

Collector

Leo O.Miles

Courtesy of Lloyd Williams

Collection M 144

POINT ARENA
Lighthouse Reef

August 26 and 27, 1950

Collected in the early morning at low tide on the 4 acre reef just south of the Lighthouse. A barren reef, flat with run-off channels, the outer edge grown to large sea weeds, particularly to Postelsia palmaeformis, various Corallines and red-ebcrusting algae. On August 26th.

Searlesia dira
Haliotis rufescens
H. walallensis
Acmaea pelta

On August 27th, collected in early morning at low tide further south than above, south of the Lighthouse road on abrupt rocky cliffs of bed rock, no boulders but many crevices and shallow tide pools.

Collections on both dates were of the same species found at STEWARTS POINT in similar niches.

Collection M 145

STEWARTS POINT
Enclosed reef.

November 8th, 1950

Collected on the enclosed reef, which is a flat acre of shale protected from the sea by higher sandstone ridges.

Collections included:

The usual gastropods taken at this point.

Haliotis rufescens; many of these abalones had broken shells and otherwise showed that they had been torn from their previous holds and were washed in to, this basin by the Southeaster of last week.

Empty shells (2) of Haliotis kamtschatkana were found.

See also M 146 and previous collections here.

Collector

Lee O.Miles

Collection M 146 STEWARTS POINT
Cove.

November 9th, 1950

Collected in the Cove, separted from the Basin collected yesterday in M 145 by a narrow and impassable high reef; a shallow cove exposed to the Northwest; with bed rock supporting many boulders in Zones 2 and 3, with cobble stones in Zone 1 and the upper beech, backed by rock cliffs on the south and toward the north, but mostly alluvial at the cove; with exposed bed rock increasing from Zone 2 outward, heavily encrusted by red Algae, and with many crevices and run-offs.

Collections included no new material.

Haliotis rufescens of 7" or better, present in such numbers as to infer they had been transported there after being torn loose in deeper water by last weeks storm. Legal abalone get short ~~idx~~ shift here in "Abalone Tides".

Collection M 147 "JEFFERSON"
cty L. Williams.

December 5th, 1950

Taken by dragboat "Jefferson" in 40 fathoms off FORT ROSS.

Collections include:

Shrimp, "Mexican".

Hermit Crab

Sea Anemone attached to old Scotch Bottle.

Mud in the above bottle.

Collector

Lee O.Miles
Courtesy LLoyd Willian s

Collection M 148 "JEFFERSON"
cty L.Williams

December 12th, 1950
By the dragboat "JEFFERSON";
Off the mouth of the RUSSIAN RIVER in 100 to 105 fathoms.

Collections include:

Star fish, spiny red.(Hippasteria?)

Sea Biscuits

Sponge, huge cylinder, 24 " long, 8" diam.

Brittle stars, small, red, on sponge.

Spider crab - young.

Skate "Eggs".

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Collection M 149 "JEFFERSON"

December 13th, 1950

Taken by dragboat "Jefferson" in 110 fathoms off TOMALES POINT toward CORDELL BANKS:

Sponges, sack-like, similar to above, but smaller.

Taken off TOMALES POINT by fish boat of Jess King, a cod containing the following; taken in 10 fathoms:

Bloater Fish .

Collector

Lee O.Miles
Courtesy of
Lloyd Williams
Jess King.

Collection M 143 "JEFFERSON"
Cty L. Williams.

Aug 20, 1950

Off POINT REYES in 40 fathoms, the drag boat "Jefferson" snagged a rock and picked up several loose cobblestones; and the drag boat "Hartle" snagged wreckage of a wooden vessel nearby, pieces of which the Jefferson brought to the dock at Meredith Fish Company in BODEGA BAY.

Taken off and in this wreckage were:

Pholads like P. penita. Specimen # 250.

Worms

Sea Anemone

Crab; sent to AMF. Callathoid?

Teredo; Specimen # 249

Mud

Coral? Sent to AMF.

Opalescent Squid.

Cuttle Fish

Collector

Lee O.Miles

Courtesy of Lloyd Williams

Collection M 144

POINT ARENA
Lighthouse Reef

August 26 and 27, 1950

Collected in the early morning at low tide on the 4 acre reef just south of the Lighthouse. A barren reef, flat with run-off channels, the outer edge grown to large sea weeds, particularly to Postelsia palmaeformis, various Corallines and red-encrusting algae. On August 26th.

On August 27th, collected in early morning at low tide further south than above, south of the Lighthouse road on abrupt rocky cliffs of bed rock, no boulders but many crevices and shallow tide pools.

Collections on both dates were of the same species found at STEWARTS POINT in similar niches.

Collection M 145

STEWARTS POINT
Enclosed reef.

November 8th, 1950

Collected on the enclosed reef, which is a flat acre of shale protected from the sea by higher sandstone ridges.

Collections included:

The usual gastropods taken at this point.

Haliotis rufescens; many of these abalones had broken shells and otherwise showed that they had been torn from their previous holds and were washed in to this basin by the Southeaster of last week.

Empty shells (2) of Haliotis kamtschatkana were found.

See also M 146 and previous collections here.

Collector

Leo O.Miles

Collection M 146 STEWARTS POINT
Cove.

November 9th, 1950

Collected in the Cove, separted from the Basin collected yesterday in M 145 by a narrow and impassable high reef; a shallow cove exposed to the Northwest; with bed rock supporting many boulders in Zones 2 and 3, with cobble stones in Zone 1 and the upper beach, backed by rock cliffs on the south and toward the north, but mostly alluvial at the cove; with exposed bed rock increasing from Zone 2 outward, heavily encrusted by red Algae, and with many crevices and run-offs.

Collections included no new material.

Haliotis rufescens of 7" or better, present in such numbers as to infer they had been transported there after being torn loose in deeper water by last weeks storm. Legal abalone get short ~~the~~ shift here in "Abalone Tides".

Collection M 147 "JEFFERSON"
cty L. Williams.

December 5th, 1950

Taken by dragboat "Jefferson" in 40 fathoms off FORT ROSS.

Collections include:

Shrimp, "Mexican".

Hermit Crab

Sea Anemone attached to old Scotch Bottle.

Mud in the above bottle.

Collector

Lee O Miles
Courtesy LLoyd Willian s

Collection H 148 "JEFFERSON"
cty L.Williams

December 12th, 1950
By the dragboat "JEFFERSON";
Off the mouth of the RUSSIAN RIVER in 100 to 105 fathoms.

Collections include:

Star fish, spiny red.(Hippasteria?)

Sea Biscuits

Sponge, huge cylinder, 24 " long, 8" diam.

Brittle stars, small, red, on sponge.

Spider crab - young.

Skate "Eggs".

- - - - - - - - - - - - - - - -

Collection H 149 "JEFFERSON"

December 13th, 1950

Taken by dragboat "Jefferson" in 110 fathoms off TOMALES POINT toward CORDELL BANKS:

Sponges, sack-like, similar to above, but smaller.

Taken off TOMALES POINT by fish boat of Jess King, a cod containing the following; taken in 10 fathoms:

Floater Fish .

Collector

Leo O.Miles
Courtesy of
Lloyd Williams
Jess King.

Collection M 150 "JEFFERSON"
cty L.Williams

January 20th, 1951

Taken by drag boat "Jefferson" in 50 fathoms of water off FORT MOSS.

Collections include:

Fish, 2 specimens.

Anemone, not taken before. This had been attached to a bed of broken cockle shells averaging about 1" in diameter, each.

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Collection M 151 "JEFFERSON"
cty L.Williams.

January 25th, 1951.

Taken by drag boat "Jefferson" in about 35 fathoms offshore between FORT MOSS and RUSSIAN RIVER.

Collections include:

Rat fish egg.

Shark eggs, 2.

Eel, 2.

File Fish, 2.

Collector,

Leo O.Miles
Courtesy of Lloyd Williams.

Collection M 152 CAMPBELLS COVE

February 19th, 1951 Low tide 4.15 PM - -0.6'

Collected at low tide at CAMPBELLS COVE, in BODEGA BAY; on rocks particularly, on both sides of the Cove's sandy beach, especially for Stichopus, of which not one was found.

Collections and observations include:

Star fish, extra large Pisaster ochraceus.

Polinices lewisii - many egg cases now present on sand-mud flats.
Zirphaea pilsbryi - in peat bed near water tank.

Saxicava pholadis, the Nestler Clam, with above.

Pholadidea penita, the borer, with above.

Solen rosaceus, the Jack-knife clam, in sand bank.

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Collection M 153 STEWARTS POINT
Basin.

March 3rd, 1951. Low tide at 2.15 PM, -0.1'

Collected on flat bar enclosed and protected by reefs of sand stone, exposed for most of extent at 0.0' tide even in heavy sea, sooner if low surf.
See also other collections as per Appendix A.

Collections include:
Nudibranch, yellow.
Sea Anemone, red.
Sea Anemone, white.
Haliotis rufescens
H. wallalensis
H. cracherodi; one only, in crevice.
Haliotis speciosa. Corrugated. H. kamstchatkana?
Thais lima
Creamy mass - Compound Ascidea?
Small gastropods.

Collector,

Lee O.Miles

Collection M 154 (E 1)

EUREKA
S.Humboldt Bay

May 21st, 1951. Low tide at 5.10 AM, -1.8'

Collected on incoming tide on South HUMBOLDT BAY, 3 stations:

"A" - On South Spit, north of TABLE BLUFF -and Light - On inner or bay shore, marshy, of thin sand on blue clay and sand, in Zones 1 & 2.

"B" - On outer western sandy beach at junction with south Jetty. Hard packed clean sand, wide beach. Zones 1 & 2.

"C" - On the East shore of South HUMBOLDT BAY, at "King Salmon Motel", at foot of bluff exposing at water level a 10' bed of blue clay covered by 35' of sand and light gravel, topped by a lighter 10' bed of clay. The lower bed contains small soft Oyster shells, partially fossilized. Collected only in Zones 1 & 2.

Collections include:

"A" - Macoma nasuta
Mya sp?
Schizothaerus, small.
Fish, in burrow of Callianassa?
Isopods, seemingly eating plant roots in Peat-clay, Zone 1.

"B" - Jelly Fish?, small.
Emerita?

"C" - Shells only -
Saxidomus nuttallii, Washington Clam.
Paphia staminea. (Present in order named, Saxidomus
Schizothaerus. (3rd in abundance.

Collector

Leo G.Miles

Collection M 155 (E 2) EUREKA
South Jetty.

May 22nd, 1951. Low tide at 6.00 AM of -1.9'

On South Jetty at north end of South Spit, HUMBOLDT BAY.
"A", from 6.00 to 7.00 AM, on rocks of Jetty near Engineer's Camp; rocks still angular, of a very hard green stone, with quartz? veins; sand fine between boulders at this point, where a rock point extends into channel about 75'; much fucus and other broad-bladed Algae.
"B", from 7.00 AM to 8.00 AM, on the rocks of South Jetty seaward about 200 yards from above site, and on ocean side at near low tide mark; many Balanus, some Mytilus californica, and with clean sand about lower rocks. Surf gets a side swipe.

Collections include:
"A" -
Acmaea digitalis in Zones 1 & 2, and in Splash Zone above.
A. persona, large specimens, also in Zones 1 & 2.
Worms, beneath rocks, in sand.
Pagurus sp. in shells of following:
Amphissa, often.
Calliostoma costata, rarely.
Thais lamellosa, not infrequently.
Nassarius fossatus, not "
Tegula funebralis, " "
Kelp Crab.
Crab, other.
Cucumaria, small white.
Nudibranch.
Nudibranch
Isopods, latge. Ligyia?
Isopods, small. Many on bottoms of rocks.
NOTE- Practically no Balanus, no Goose Barnacles, and relatively few Thais and Littorines.
"B"-
Thais lamellosa - many, large, varied in size, shape, color and weight of shell.
Thais lima, nice specimens.
Thais canaliculata, large.
Thais emarginata.
NOTE - All species of Thais spawning.
Chitons - Few seen.
NOTE - Clam diggers (for Siliqua patula, in outer sand beach) having no luck at all. Report better luck north at "Clam Beach".

Collector, Lee O.Miles

Collection M 156 (E-3)

EUREKA
South Jetty.

May 23rd, 1951. Low tide at 6.35 AM of -1.9'

Collected from 6.00 AM to 8.00 AM in heavy fog, on SOUTH Jetty of HUMBOLDT BAY entrance, sand area as in M 155 but further seaward.
Took samples of sea water at low tide and at high tide, for salinity tests.

Collected include:

Thais lamellosa in great abundance, groups at bottom edges of boulders, spuring &c. Mostly below Balanus Zone.
Thais emarginata, found highest of these Thais.

Thais lima, in heavy Balanus colonies.

Thais canaliculata, with T.lima.

NOTE - No marked zoning of any of above.

Crab, small, with groups of Thais lamellosa.

Mopalia ciliata; mostly just below Balanus.

Caprella sp. - With Algae and Hydroids affording holdfast, protection and camouflage.
Isopods in above colony.

Collector,

Lee O.Miller

Collection N 157 (E-4)

EUREKA
South Sand Spit.

May 24th, 1951. Low tide at 7.35 AM of -1.6'

Collected from 6.00 AM to 10.00 AM, on the N.E. tip of the South Sand Spit, HUMBOLDT BAY, from the end of South Jetty on around the spit to secondary jetty and beyond into sand-mud flats, west of BUNNE POINT across the Bay.
"A" - Collected on and about the East end of South Jetty on sandstone and hard green stone in Zones 1 & 2; and in clean sand in Zones 3 & 4; gets tag end of swells coming in the Inlet to Humboldt Bay, and waves on the Bay from North, South and East. Some Balanus and usual Algae.
"B" - Sand bar inside S. and E. of end of South Jetty, and between it and secondary south jetty, and beyond latter into mud on sand flats (mud soft and knee deep). This mud flat collected in N 158.

Collections include:

"A" -

Littorina sp
Thais emarginata, many.
Thais lamellosa, some.
Thais canaliculata?
Acmaea digitalis.
A. pelta?
A. fenestrata, 2 only.
A. persona.
Sea Anemone, large green, white inside.
Pugilis sp, 2 washed on sand.
Compound Ascidian.
Sea Anemone, small red.
Nopalia ciliata?

"B" -

Polinices lewisii, one in clean sand, attacking
Siliqua patula, attacked by above.
Olivella biplicata, profuse.
O. pedroana?, few.
Cardium corbis?
Crab, small.
Crab, black tip on heavy claws, not hairy.
Clam, small white, makes track on sand surface like 0 or 8

Collector, Lee O.Miles

Collection H 158 (E-5) EUREKA
South Sand Spit.

May 25th, 1951. Low tide at 8.30 AM of -1.3'

Collected from 7.30 AM to 10.00 AM near north end of South Sand Spit, at and east of inner end of South Jetty, in HUMBOLDT BAY, 15 miles north of TABLE BLUFF.
"A" - On sand bar at east end of South Jetty, on around to secondary jetty; in Zones 2 & 3.
"B" - South of secondary jetty on sand in Zone 2, becoming thin mud knee deep or better, over sand out some distance into Zone 3, or 150 yards south of this jetty.
"C" - On piles in bight of "A" bar, in Zone 2, but with running water about their bases. Piles are old, nearly ready to fall over.

Collections include:
"A" - Olivella biplicata, profuse.
Crab - Cancer
Crab - Portunus?
Crab - Small.
Tellina bodegensis
Cardium
Mya

"B" - Polinices lewisii by hundreds, in mud.
P. draconis?, 1 specimen.
Shells of
Paphia
Mya?
Macoma nasuta
Schizothaerus

"C" - Thais lamellosa
T. emarginata
Littorines
Acmaea
Worms under bark.
Beach Hoppers.
Isopods.

Collector,

Lee O.Miles

Collection M 159 (E-6)

EUREKA
Whaling Station.

May 24th, 1951.

At the Whaling Station in FIELD'S LANDING on South HUMBOLDT BAY, reputed at this date to be only operating whaling station in the USA; very unpopular with natives.

Brought in a 46' male Humpback Whale from tender at dock. Hauled by cable and winch up incline into cutting yard. Meat is sold for human consumption, also for dog food; Blubber is "tried" for whale oil; Odds and ends and the bones, go for fertilizer.

Collections include:

Whale Barnacles, partially or wholly imbedded in hide.

Goose Barnacles, with above.

Whale Lice.

See photos.

Collector,

Lee O.Miles.

Collection M 160 (Cl 1)

FORT BRAGG
Cleone Beach - N.

June 4th, 1951. Low tide at 5.00 AM of -1.0'.

Collected in early morning on CLEONE BEACH, several miles north of FORT BRAGG; north of logging trestle in State Park, on sand beach with rock islands at low tide; these rocks eroded flat, with deep clefts full of sand below Zones 2 & 3.

Collections include:

Littorina scutulata
Thais emarginata
Thais lima
Nopaia
Kathaflina tunicata.
Chiton
Chiton
Aeglophenia sertulatia - Ostrich Plume Hydroid.
Emerita analoga
Orchestodia - Hoppers.
Nereid Worms from sand.
Cancer sp.
Orchestia - green shrimp.
Pisaster ochraceus
Pycnopodia
Goose Barnacles.

Collectors,

J.& B.Copsey
Leo O.Miller

Collection H 161 (Cl 2) FORT BRAGG
(Cl 3) Cleone Beh S.

June 5th & 6th, 1951.

On June 5th, low tide at 5.40 AM of -0.9';
Cl 2 collected south of log trestle on rocky point exposed to sea to North and N.W., with some loose boulders on bed rock, without fine sand; mostly Zones 2 & 3.
Cl 3 On June 6th, low tide at 6.15 AM of -0.9'; low surf. collected on same site as above, but also in Zone 4, and around rocky point and in interior runs where protected from sea from W and Southerly winds; otherwise on Unprotected Outer Coast.

Collections include:

Coral - Balanophyllia elegans.
Compound Ascidian.
Callioctopa costata.
Tegula brunnea, large specimens.
T. funebralis
Crepidula adunca.
Acmaea insessa.
A. pelta.
A. scutum.
A. mitra.
Pugettia producta?
Homricia sp.
Pyonopolia.
Leptasterias camtis.
Dermasterias sp.
Hapalogaster cariensis - Furry crab.
Crab, flat clean, med. small.
Chitons, various. See H 162.
Nudibranch, red.
" lagon.
Cryptochiton
Haliotis wallalensis.
H. rufescens.
Strongylocentrotus purpuratis.
S. franciscana
Coularchus (Cyclogaster) Cling Fish.
Blenny
Isopods.
Diadora aspera.
Pagurus sp.
Styela.
Nagarites.

Same on June 6th, plus:
Cryptolithodes sp. Crab with overhang.
Sea Anemone, small, red, white fringe.
Callioctopa sp.
Tonis lamellosa, l.
Amphinea versicolor.
Urosalpinx?

Collectors,
J. & B. Copsey
Lee O.Miles

Collection M 162 (Cl 4) FORT BRAGG
Cleone Beach S.

June 7th, 1952 Low Tide at 7.45 AM of - 0.8'. Moderate surf.
Sunny.
Collected on the rocky point south of the sandy be ach at the State Park, CLEONE BEACH; sand site as M 161, but further south in addition, in more protected niches (from prevailing NW winds.

Collections include:
Sponge, yellow.
Compound Ascidea, purple, with large "blow holes".
" " yellow, " " "
Worms, plumed, in plastic tube.
" green, in tube of shell particles.
Cucumaria minima.
" red.
Sipunculid.
Thais lima .
T. emarginata.
Acmaea pelta.
A. scabra.
Coral - Balanophylla elegans.
Searlesia?
Collisetoma contata
Chiton
Chitàn
Chiton
Pugettia sp.
Crab, flat claw.
Nogatobena sp.
Clavelina
Worm, long, thin, red.
Nudibranch
Nudibranch
Haliotis rufescens, juv.
H. wallalensis, juv.
Amphissa versicolor.
Murex?
Margarites.

Collectors,

Lee O.Miles.
B.J .Copsey.

Collection M 163 (Cl 5)

FORT BRAGG
Glecne Beach.

June 7th, 1951.

Collected on clean sand beach at GLECNE BEACH, in State Park, just north of Rocky Point previously collected in this area. See M 161 & 163.
Much refuse on beach, especially of kelp.

Collections include:

Hydroids.

Hydroids.

Emorita sp.

Thais lima, on rock islets.

Thais emetginata with above.

Saxicava pholadidea. Nestler clam.

Collected by

Jack Copsey.

Collection M 164

CORDELL BANK.
Drag Boats.

June 18th and 19th, 1951.

Dragboats in 100 fathoms of water off the Cordell Banks, north of the Farralones.

Collected by the "VERONA" on June 18th 1951, courtesy of Lloyd Williams:

Aphrodita sp.
Stichopus?
Portunn sp.
Sea Anemone

Collected by the "Jefferson" on June 19th, courtesy of John T. Lappie:

Paralithodes californiense. Male.
Sea Basket
Fish. Specimen #45.
Sea urchins.

Collector
Lee O.Miles,
Courtesy of Lloyd Williams
& John T.Lappie.

Collection M 165

BODEGA BAY.
Doran Pier.
Wharf Piles.

June 19th, 1951. Low tide at 5.00 AM, -2.0'.

In early AM, collected on sand bar at Doran Pier, at entrance to jetty inlet. Clean sand, Zones 3 & 4.
And from piles at Dusty's Wharf, being stripped for concrete protective bases.

Collections from sand bar at Pier:

Clinocardium - Cockle.

Solen/sicarius, small to medium specimens.

Siliqua patula? Small.

Polinices lewisii

Olivella biplicata.

Tellina bodegensis.

Megatebenna? Small orange; on jetty rocks.

Collected from piles at Dusty's Wharf:

Ostraea

Balanus

Mytilus edulis

From silty surfaced sand bar near Pier:
Worms-
Protruding from holes, half out on silty surface, full of eggs or milt, and discharging same, Worms.

Collector,

Lee O.miles

Collection M 166 Dillon Clam Flats.

June 20, 1951.

At sand flats south of DILLON BEACH, near anchorage.

Collection includes:

Polinices lewisii

Jack-knife Clam

Worms

Hydroid.

Collector, Lee O.MILES.

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Collection M 167 (G166) "VERONA"
Cordell Banks

June 20, 1951.

Taken by dragboat "VERONA", courtesy of Lloyd Williams,
in 200 fathoms on the CORDELL BANKS, north of The Farralones.

Collections include:
Sea Baskets

Skate eggs

Shrimp (near surface)

Paralithodes sp (Spider or King Crab, local names).

Echidnocerius foriminatus (per Arnold(s book) Box Crab.
One female specimen beginning to shed old shell.

Collector

Lee O.Miles,
Courtesy of Lloyd Williams

Collection M 168 PORT ROSS.

June 21st, 1951.

Collected from rock and boulder beach at Port Ross.

Collected:

Cryptolithodes sp. Umbrella Crab.

Purpuron sp.

Epitonium sp. Discharged fuchsia color fluid in alcohol.

Collector,
Wm J Johnson.

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Collection M 169 "VERONA"
Off Cordell Banks.

June 26th, 1951.

Taken by dragboat "Verona" in 100 fathoms near Cordell Banks (3)

Collections include:

Paralithodes rathbuni, a female, with eggs.

Paralithodes californiensis, male.

Sponges, siliceous.

Sea Anemone, red.

Star Fish, red, thorny.

Collector,
Leo O.Miles,
Courtesy Lloyd Williams.

Collection M 170. "VERONA".
Cordell Banks, (N)

July 7th, 1951.

Taken by drag boat "Verona" north of the Cordell Banks, in 100 fathoms:

Collected:

Rock, limestone, coated, with encrusted clams. Tore net, broke off of ledge.

Specimen sent to Dr Durham, U of California, for ident. and his information.

Collector,

Lee O.Miles,
Courtesy of Williams, Lucas, and Hoelman, of Verona.

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Collection M 171. SHELL BEACH.

July 17th, 1951. Low tide at 4.00 AM.

Collected on incoming tide on rocks and among loose boulders at Shell Beach.

Collections include:

Hydroids on Phylospadix.

Isopods

Cucumber, black.

And usual specimens taken here.

Collector,
Lee O.Miles.

Collection M 172 NORSEMAN COVE.
& Campbell Ranch Cove.

July 18th, 1951. Low tide at 4.50 AM of -1.8'

Collected on the rocks at the above-named sites, mostly for ALGAE.

Collections include:
ALGAE.
Sponge.
Isopods.
Compound Ascidea.
Entodesmus
Crab, small, back marked by 4 spots.

Collector, Lee O.Miles.

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Collection M 173 FORT ROSS
Cemetery Point-

July 19th, 1951. Low tide at 5.40 AM of -1.5'. Low surf.

Collected north of Ruoff Family Cemetery, about 3 miles north of FORT ROSS. On bed rock and boulders.

Collections include:
ALGAE.
Nudibranch, yellow.
", Rostango.
Purpura
Calliostoma costata.
Haliotis wallalensis, 2.
Hapalogaster sp. Furry club.
Fish, small, # 62.
Hydroids.
Pododesmus sp. Complete. P. macroschisma.
Isopods, large, on algae.
Styela.
Compound Ascidea, 2.
Hydroids on Corralines.
" on Styela.

Collector,

Lee O.Miles

Collection M 174 CORONA DEL MAR

July 3rd, 1951.

Collected at Corona Del Mar by Karl Pederson of Albion, and donated to Pacific Marine Station.

Collection:

Sandava sp. Rock borers.

Collector,

Karl Pederson.

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Collection M 175 STEWART'S POINT.
Basin roof.

July 21st, 1951. Low tide at 7.00 AM of -1.0'.

Collected in the flat reef basin protected by sandstone reefs from sea; on shale, slimy with brown algae (Slime) and other algae in abundance.

Collections include:

Purpora sp.

Mitrites gigantous.

Haliotis rufescens.

Cucumaria sp. White, with orange tips.

Collector,

Lee O.Miles.

Collection M 176

"VERONA"
Cordell Banks.

July 29th, 1951.

Taken by drag boat "Verona" on Cordell Banks, in about 100 to 110 fathoms of water.

Collections include:

Sea Anemone, white.

Sea Anemone, brown.

Aphrodite sp.

File Fish

Collector,

Lee O.Miles,
Courtesy L.Williams.

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Collection M 177

"VERONA"
Cordell Banks.

July 31st, 1951.

Taken by drag boat "Verona" on th Cordell Banks at about 100 to 110 fathoms.

Collections include:

Paralithodes sp, female.

Aphrodite, large specimen.

File Fish.

Sea Anemone, red.

Collector,

Lee O.Miles

Courtesy of Lloyd Williams.

Collection M 178 "VERONA"
Cordell Banks.

August 2nd, 1951.

Taken by drag boat "Verona" on the Cordell Banks in 100-105 fathoms:

Collection included:

Red Sea Anemone, large.
Sea Anemone, white, like peeled Bermuda onion when closed.
Sea Anemone, brown.
Stylatula.

Collector,

Leo O.Miles,
Courtesy of Lloyd Williams, et al.

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Collection M 179 "VERONA"
Cordell Banks.

August 3rd, 1951.

Taken by drag boat "Verona" on Cordell Banks in an average depth of 105 fathoms.

Collections include:
Sea Anemone, large, white.
Sea Anemone, " brown.
Sponge.
Mud from bottom.
Worms.
Amphiasa versicolor.

Collector,

Leo O.Miles,
Courtesy of Lloyd Williams.

Collection M 100 "VERONA"
Off Cordell Banks.

August 4th, 1951

Taken by drag boat "Verona" off the Cordell Banks in 60 fathoms of water.

Collection includes:

Sea Cucumber, spotted red.

"Hag Fish" - Slime EEL.

Hermit Crab in Flatcam Shell.

Shrimp.

Collector,

Lee O.Miles,
Courtesy of Lloyd Williams, et al.

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Collection M 162 "VERONA"
Off Russian R.

August 6th, 1951.

Taken by drag boat "Verona" in about 30 to 50 fathoms of water off the RUSSIAN RIVER.

Collections include:

Aphrodite, baby.

Sea Biscuits baby.

Eunaticina sp.

Sea Biscuits.

Polinices lewisii shells with
Hermit Crabs
Worms in umbilicus.

Collector,

Lee O.Miles
Courtesy of Lloyd Williams, et al.

Collection M 141 HORSESHOE COVE.

August 5th, 1951. Low tide at 6.30 AM, of -0.1'

Collected at Horseshoe Cove, mostly off rocks and with ALGAE.

Collections include:

Worms in calcareous tubes.

Hydroids on Zostera.

Bryozoa on Zostera.

Cancer crab, color phase of young - dk brown carapace,
white legs, &c.

Worms in Corralines.

Bankia in rotten wood.

Littorines from Zone 1.

Caprellids on ALGAE.

Small fish in tide pool, among ALGAE.

Hopper, green.

Pugettia.

Collector,

Leo O.Miles.

Collection M 183 A "VERONA"
Off Russian R.

Taken by drag boat "Verona" in 30 to 50 fathoms off the RUSSIAN RIVER.

Collections include:
Shrimp
Skate Eggs.
Leather Stars.
Stars, thin, red.
Octopus 3" & 9".
Hermit Crabs in Polinices.
Worms in Polinices (Umbilicus) Scale.
W " " with crabs.

Collector,

Lee O.Miles,
Courtesy of Lloyd Williams.

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Collection M 183 B "VERONA"
Off Russian R.

August 30th, 1951.

Taken by drag boat "Verona" in 30 to 50 fathoms of water off the mouth of the RUSSIAN RIVER.

Collected:

Sea Whips - Pennatulids?

Spindle Shell, old, and

Hermit Crab.

Collector,

Lee O.Miles,
Courtesy of Lloyd Williams.

Collection M 104 "VERONA"
off Russian R.

August 23rd, 1951.

Taken by drag boat "Verona", Captain Walt. Lucas, in about 30 to 40 fathoms off the mouth of the RUSSIAN RIVER north to FORT ROSS.

Collected:

Parallithodes sp., large specimen.

Lonorhynchus crispatus, young female.

Blenny? Eel, large for Blenny, fastened under gills of Flounder (Perhaps in handling)
Bryozoa on Lox. crispatus above .

Collector,

Lee O.Miles,
Courtesy of Lloyd Williams.

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Collection M 105 "VERONA"
Bodega Hd to Russian R.

September 14th, 1951

Taken by drag boat "Verona" in a drag north from BODEGA HEAD to off the RUSSIAN RIVER, in 38 to 42 fathoms.

Collected from a net full of trash - hake, skates, 30-rays, &c;

Shrimp, large, bright red.
Sea Cucumbers, short, fat, 2"-3" long.
Sea Hares.
Pecten caurinus valve.

Collector,

Lee O.Miles, in person.

Collection M 186 DOBEGA BAY
Horseshoe Cove.

September 26th, 1951.

Taken at plus 2.0' tide, on sand at Horseshoe Cove and at Goat Rock(By Snider & Hemminger). Washed ashore.

Collections include:
Bryozoa on Corallines.
Felty growth on Corallines.
Myrtilinoria.
Skate Tooth.
Prototheca sp.
Octopi.
Grunion? Young transparent fish washed ashore "by the millions" at Goat Rock .

Collector,

Lee O.Miles.

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Collection M 187 DOBEGA BAY
Horseshoe Cove.

October 15th, 1951. Low tide at 5.30 PM of -0.4'.

Taken on ebbing tide in late PM on sand at HORSESHOE COVE. With many ALGAE.

Collected:

Myrtilinoria.
Hydroids
Tegula brunnea
Cropidula adunca
Small gastropods, various.

Collector,

Lee O.Miles

Collection M 188 HORSESHOE COVE

October 25th, 1951.

Taken at plus 2.5' in mid afternoon, on sand at HORSESHOE COVE, mostly washed in with ALGAE.

Collected :

Hydroids on Corallinea. 188-1
Sponge. 188-2
Worm. 188-3
Myrtilmoria.
Cropidula nivea.

Collector,

Lee O.Miles

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Collection M 189 SHELL BEACH. North.

October 30th, 1951. Low tide at 5.00 PM, -0.9'

Taken on ebbing tide to low tide, on rocks and bed rock of north shore of Shell Beach.

Collected:
Cucumaria, black; to USC. 189-1.
Isopods. to USC. 189-2.
Entodesmus
Cropidula onyx.
C. nivaea.
Megatebennus - black mantle, white spots.
Diadora aspera.
Pododesmus sp/
Compound Ascideae.
Amphissa ?

Collector,

Lee O.Miles.

Collection # 190 " VERONA"
Fanny Shoals.

November 1st, 1951.
Taken by the dragboat "Verona" in water from 90 to 120 fathoms deep, on FANNY SHOALS north of the Farallones.

Collections include
Worms in calcareous tubes on soft sandstone.

Sea Anemones, small, on tubes.

Tiny clams with above.

Sponge, in sheets.

Sponge, large long cylinder.

Hydroids

Shark, baby.

Dal

File Fish

Needle Fish

Crab, Pelfanus sp.

Spiny crab, Paralithodes rathbuni.

Box crab, Lomrigmeus crispatus, half grown.

Fish, long spine.

Octopi

Collector,
Lee O.Miles
Courtesy of Lloyd Williams.

Collection H 191 ST.MARKS POINT
Cove roof.

December 10th, 1931.

Low tide at 3.30 PM of - 0.6'. Low surf.

Taken in the protected cove on shale roof, at low water.

Collection includes:

Calliostoma annulatum, 3 colored top shell.

Haliotis kamtschatkana.

H. walallensis.

H. rufescens; one holds live Tegula brunnea and had cleaned the shell of all algae.
Tegula brunnea with coat of algae.

Crepidula adunca.

Acmaea incessa on "tree kelp".

Amphissa versicolor.

Nuttallina.

Tegula pulligo, Martin. Sharp shoulder.

Chiton.

Collector,

Lee O.Miller.

Collection M 192

BOSCA BAY
Horseshoe Cove.

January 4th, 1952.

Low tide at 10am of 1.2'. Low surf.

Collected on sandy beach at mid-tide mark; little Algae and few shells present, and much of usual sand washed out, exposing peat beds at south end.

Collection includes:

Compound Ascidian

Sponge on barnacles

Entodesma

Hyrtiliaria

Sea Squirts

Purpura foliata

Collector
Leo O.Miles

- -

Collection M 193

SHIMATES POINT
Cove reef.

January 6th, 1952.

Low tide at 3.30 PM of - 0.6', but high surf.

Collected were the following; for site description see other Collections.

Haliotis kamtschatkana

Chiton.

Collector,

Leo O.Miles

Collection N 194 STEWARTS POINT.

January 23rd, 1952, 12.30 pm to 2.00 PM.

Low tide at 2.45 PM of - 1.0 ' Low surf.

On reef in protected cove described in other collections here.

Taken:
Haliotis cracherodii
H. kamtschatkana
H. rufescens
Diodora aspera
Purpura foliata
Amphissa versicolor.

Collection N 194 a. Stewarts point.
North Reef.

February 6th, 1952.

Low tide at 3.10 PM of - 0.3'. low surf.

Taken: on bed rock: reefs north of three sites at Stewarts Point.

Collection includes:
Haliotis rufescens, 6" long.
H. walallensis.
Tegula brunnea
T. funebralis
T. gulligo
Crepidula adunca
Scaglosia?

Collector

Lee O.Miles

Collection M 195

BODEGA BAY
Salmon Creek Beach

March 19th, 1952

Low tide at 11.55 AM of - 0.4'; moderate surf.

Taken on wide sandy beach, wide open to the sea.

Collected:
Goose barnacles, large, on log floated in.

Also 7 small Jap Glass Floats.

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Collection M 195 a.

BODEGA BAY
Moran Pier.

March 19th, 1952.

Tide as above.

On sand bar beside pier at west end of MORAN PARK, at inner end of inlet to Bodega Harbor. Some silt near pier.

Collected:
Actaeon punctocoelata, Carpenter.

Nudibranchs.

Collector,

Lee O. Miles

Collection N 196 "VENUS"
Bodega Canyon.

June 9th, 1952.

Taken by the dragboat "VENUS" in about 150 fathoms of water just north of submerged Bodega Canyon to the west of Bodega Head.

Collected:

Red Snapper or Sea Perch

Cerpenilio

"Spindle"- Neptunecula corporterlann, Cobb 4".

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Collection N 196 a "VENUS"
Bodega Canyon

July 21st, 1952.

Taken by the dragboat "VENUS" in about 150 fathoms of water near submerged BODEGA CANYON to the west of BODEGA HEAD,

Collected:

Paralithodes rathbuni, Spiny Crab, large specimen.

Cardium velve, small.

Lomorhynchus crispatus, Box Crab.

Collector,

Lee O. Miles

All above thru the courtesy of Lloyd Williams.

Collection H 197 "VENONA"
Fanny Shoals, N.

August 10th, 1952.

The dragboat working in 100 to 150 fathoms of water between Fanny Shoals and Cordell Bank, took nearly 20,000 lbs of "Lodloo" or Red Snapper or Deepsea Perch (See H 196) and -

Collected:
"Pilot Fish"
Octopi, 12".
Paralithodes rathbuni, spiny crab.

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Collection H 198 "VENONA"
Bodega Canyon, N.

September 19th, 1952.

The dragboat "VENONA" in 165 to 200 fathoms just north of submerged BODEGA CANYON west of Bodega Head,

Collected:
Hydroid, red.
Hydroid, white, with chove.
Hydroid on Sea Squirt.
Brittle Star, pinnate.
Skate Egg
Aphrodite
Annelid, skin thick and white.
Sea Squirt.
Sea Biscuit, heavy.
Coop. Anelidae, with nipples.
Crab, small Hinalus?
Shrimp, female, large, gravid.
File Fish
Isocrignous crispatus?, 4" to 6".
Clam, small, pointed.

Collector,

Leo O.Miles.

All the above thru the courtesy of Lloyd Williams,

Collection H 199

BONNA BAY
Torrecboo Cove

November 14th, 1952.

Taken at mid-tide on sandy beach of Torrecboo Cove, described in other H collections. At end of severe Southeaster; much wrack on beach, mostly Algae, but :

Collected:

Haliotis rufescens shells.

Mytilus californica, large specimens.

Mytilimeria nuttallii, Conrad. In Comp. Ascidian.

Fish Eggs.

Compound Ascidian.

Goose Barnacles.

Styela

Acmaea mitra

Acmaea scabra

Acmaea, assorted others.

Collector,

Leo G.Miles.

Note: Not all taken, merely observed.

Collection M 200 BODEGA BAY
Shell Beach.

January 14th, 1953. Low tide at 4.50 PM of - 1.5'. Heavy surf.

Taken among boulders at Shell Beach north of Bodega Bay. See M 86, 91, 97, 107, etc.

Collected:

Crabs, small.

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Collection M 201 "VERONA"
Off Russian River.

January 26th, 1953.

Taken by the dragboat "Verona" in 30 to 50 fathoms of water off the mouth of the RUSSIAN RIVER.

Collected:

Sea Plumes

Aphrodite sp.

Worm in large calcareous tube.

Sea Basket.

Collector,

Lee O. Miles.
The above (M 201) thro the courtesy of Lloyd Williams.

Collection M 202

DONNA DAY.
Contributions

February 11th, 1953.

Donated by:

Amadeo Fonasi (Meredith Fish Co.) Dug in Bodega Lagoon
in clayey substrate,
Eirphnea pliabayi, a large specimen.

Ronnie Hunter, a fish taken by hook and line off
Meredith Dock,
Bleeny. Marked as specimen XI

Otto Hemminger, many Horseneck Clams taken in the
Lagoon today, the shells, all of this sub-species,
Schizothaerus nuttallii

Collector,

Leo O.Miles,
Courtesy of above.

Collection M 203

STEWARDS POINT
Cove

February 12th, 1953.

Low tide at 4.20 PM of - 1.3', but heavy sea.

Taken in sheltered cove, whole reef protected from open sea by sandstone reefs, as described in other collections M 117, 124, etc.

Collected:

Sponge on Algae
Cucumaria miniata, White sea cucumber.
Mitrulus foliata?, a pair.
Tegula brunnea
C. ebulnea (Cropidula)
Murex
Compound Ascidian, orange color and shape.
Astrometis sp., long 5 armed star fish.
Hoetler clam.
Anomia sp.
Acmaea scabra.
Amphissa versicolor
Thais lima
Calliostoma costata
Haliotis kamtschatkana
H. walallensis.
H. rufescens, specimens tabulated Numbers 1 to 9 incl.
These shells have come in to this secluded basin since open season last winter, as all nearly legal in size were thoroly cleaned out at that time.
As the population of this cove is renewed by "migrating" abalone of legal size, it is planned to study and tabulate them as to possible contributing factors such as worms, boring sponges and clams, etc.

Collector,

Lee O.Miles

Collection M 204 STEWARTS POINT
Cove

March 14th, 1953; low tide at 4.20 PM of - 0.3'; moderate surf.

Taken on the shale floor-roof in protected cove, collected previously and described in M 117, 122 et al.

Collected -
Haliotis wallalensis
Anomia
Tegula pulligo, sharp shouldered.
Amphissa versicolor
Creamy nudibranch, marked by black circles.

No abalones 7" or over were seen.

NOTE: Warren Purcell on party boat, snagged a box crab which weighs 7 lbs 1 ounce; and measures 10" across carapace.
Lopophymus ciliarius, or Echidnocerius ciliarius in Mrs Arnolds "Sea beach at ebb tide". According to this book, this crab is plentiful off the Columbia River.

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Collection M 205 STEWARTS POINT
Cove

April 3rd, 1953

Low tide at 7.40 AM of - 0.3'; surf moderate.

Taken at same site as above M 204.

Collected:
Amphissa versicolor
Haliotis kamtschatkana
H. wallalensis
H. rufescens; 4 F of legal size since above collection.
Red Sea Anemone, white specks.
Purpura sp.
Diadora aspera
Nestler clam.

Collector,

Lee O. Miles.

Collection M 206 STEWARTS POINT

April 9th, 1953

Low tide at 1.40 PM of - 0.3'; moderate surf.

Taken in sheltered Cove on shale reef protected by higher sandstone rocks; see M 117, 122, 140, et al.

Collected:
Haliotis rufescens; specimens studied re commensals.
H. wallalensis; one of largest specimens ever taken.
Tegula brunnea, fine specimens.
Diadora aspera.
Crepidula adunca.
Amphissa versicolor.
Calliostoma costatum.
Acmaea mitra.

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Collection M 207 a Bodega Lagoon.

April 18th, 1953.

Low tide at 9.00 AM of - 0.7'; no surf, protected.

Taken in sandy mud flats, much surface silt, angular cobbles, just north of Merodith's plant in Bodega Lagoon. Bed of Washington Clam, Saxidomus nuttalli.
Collected:
Protothaca tenerrima, Carpenter; 2 nice live specimens.

Courtesy of Lloyd Williams.

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Collection M 207 b "VERONA"
Off Pt Reyes.

April 18th, 1953

Taken by dragboat "Verona" in 35 fathoms, off POINT REYES.

Collected:
Pecten caurinus, 2 valves.

Courtesy of Lloyd Williams. Collector,
Leo G. Miles

Collection M 208

BODEGA BAY
Death Rock, point.

April 25th, 1953.

Low tide at 2.45 PM of 1.1'; a calm sea.

Taken on the rocky point inshore from DEATH ROCK, near DUNCANS LANDING. Bare rock except for such Algae and invertebrates as can withstand open surf.

Collected: In Zones 1 & 2, and upper #3.
Thais lima
Thais emarginata.
Note: T. lima was found below T. emarginata, tho the belts overlap with varying exposure to the sea. Lima thrives under more exposure than T. emarginata. T.lima did best in the belt of Mytilus californicus; T. emarginata higher in the belt of Balanus. Observation based on this niche only.

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Collection M 209

"VERONA"
Cordell Banks.

May 21st, 1953.

Taken by dragboat "Verona" in 110 to 125 fathoms on the CORDELL BANKS.

Collected:

Pecten caurinus, 2 valves.

Collector,

Lee O.Miles

Courtesy of Lloyd Williams.

Collection M 200 BODEGA BAY
Shell Beach.

January 14th, 1953. Low tide at 4.50 PM of - 1.5'. Heavy surf.

Taken among boulders at Shell Beach north of Bodega Bay. See M 86, 91, 97, 107, etc.

Collected:

Crabs, small.

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Collection M 201 "VERONA"
Off Russian River.

January 26th, 1953.

Taken by the dragboat "Verona" in 30 to 50 fathoms of water off the mouth of the RUSSIAN RIVER.

Collected:

Sea Plumes

Aphrodite sp.

Worm in large calcareous tube.

Sea Basket.

Collector,

Lee O.Miles.
The above (M 201) thro the courtesy of Lloyd Williams.

Collection M 202

BODEGA BAY.
Contributions

February 11th, 1953.

Donated by:

Amadeo Fomasi (Meredith Fish Co.) Dug in Bodega Lagoon
in clayey substrate,
Eirphaea pusbryi, a large specimen.

Ronnie Hunter, a fish taken by hook and line off
Meredith Dock,
Blenny. Marked as specimen X1

Otto Henninger, many Horseneck Clams taken in the
Lagoon today, the shells, all of thin sub-species,
Schizothaerus nuttallii

Collector,

Lee O.Miles,
Courtesy of above.

Collection M 203

STEWARTS POINT
Cove

February 12th, 1953.

Low tide at 4.20 PM of - 1.3', but heavy sea.

Taken in sheltered cove, shale reef protected from open sea by sandstone reefs, as described in other collectione M 117, 124, etc.

Collected:

Sponge on Algae
Cucumaria miniata, White sea cucumber.
Mimulus foliata?, a pair.
Tegula brunnea
C. adunca (Crepidula)
Murex M. foliata - [illegible]
Compound Ascidea, orange color and shape.
Astrometis sp., long 5 armed star fish.
Nestler clam.
Anomia sp.
Acmaea scabra.
Amphissa versicolor
Thais lima
Calliostoms costata
Haliotis kamstchatkana
H. wallalensis.
H. rufescens, specimens tabulated Numbers 1 to 9 incl.
These shells have come in to this secluded basin since open season last winter, as all nearly legal in size were thoroly cleaned out at that time.

As the population of this cove is renewed by "migrating" abalone of legal size, igt is planned to study and tabulate them as to possible contributing factors such as worms, boring sponges and clams, etc.

Collector,

Lee O.Miles

Collection M 204 STEWARTS POINT
Cove

March 14th, 1953; low tide at 4.20 PM of - 0.3'; moderate surf.

Taken on the shale floor-reef in protected cove, collected previously and described in M 117, 122 et al.

Collected -
Haliotis wallalensis
Anomia
Tegula pulligo, sharp shouldered.
Amphissa versicolor
Creamy nudibranch, marked by black circles.

No abalones 7" or over were seen.

NOTE: Warren Purcell on party boat, snagged a box crab which weighs 7 lbs 1 ounce; and measures 10" across carapace.
Loxorhyncus cibarius, or Echidnocerius cibarius in Mrs Arnolds "Sea beach at ebb tide". According to this book, this crab is plentiful off the Columbia River.

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Collection M 205 STEWARTS POINT
Cove

April 3rd, 1953

Low tide at 7.40 AM of - 0.3'; sutf moderate.

Taken at same site as above M 204.

Collected:
Amphissa versicolor
Haliotis kamtschatkana
H. wallalensis
H. rufescens;4 X of legal size since above collection.
Red Sea Anemone, white specks.
Purpurea sp.
Diadora aspera
Nestler clam.

Collector,

Lee O.Miles.

Collection M 206 STEWARTS POINT

April 9th, 1953

Low tide at 1.40 PM of - 0.3'; moderate surf.

Taken in sheltered Cove on shale reef protected by higher sandstone rocks; see M 117, 122, 140, et al.

Collected:

Haliotis rufescens; specimens studied re commensals.
H. wallalensis; one of largest specimens ever taken.
Tegula brunnea, fine specimens.
Diadora aspera.
Crepidula adunca.
Amphissa versicolor.
Calliostoma costatum.
Acmaea mitra.

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Collection M 207 a Bodega Lagoon.

April 18th, 1953.

Low tide at 9.00 AM of - 0.7'; no surf, protected.

Taken in sandy mud flats, much surface silt, angular cobbles, just north of Meredith's plant in Bodega Lagoon. Bed of Washington Clam, Saxidomus nuttalli.
Collected:

Protothaca tenerrima, Carpenter; 2 nice live specimens.

Courtesy of Lloyd Williams.

- - - - - - - - - - - - - - - - - - -

Collection M 207 b "VERONA"
Off Pt Reyes.

April 18th, 1953

Taken by dragboat "Verona" in 35 fathoms, off POINT REYES.

Collected:

Pecten caurinus, 2 valves.

Courtesy of Lloyd Williams.

Collector,
Lee O.Miles

Collection M 208

BODEGA BAY
Death Rock, point.

April 25th, 1953.

Low tide at 2.45 PM of 1.1'; a calm sea.

Taken on the rocky point inshore from DEATH ROCK, near DUNCANS LANDING. Bare rock except for such Algae and invertebrates as can withstand open surf.

Collected: In Zones 1 & 2, and upper #3.
Thais lima
Thais emarginata.

Note: T. lima was found below T. emarginata, tho the belts overlap with vatying exposure to the sea. Lima thrives under more exposure than T. emorginata. T.lima did best in the belt of Mytilgs californicus; T. emarginata higher in the belt of Balanus. Observation based on this niche only.

- - - - - - - - - - - - - - - -

Collection M 209

"VERONA"
Cordell Banks.

May 21st, 1953.

Taken by dragboat "Verona" in 110 to 125 fathoms on the CORDELL BANKS.

Collected:

Pecten caurinus, 2 valves.

Collector,

Lee O.Miles

Courtesy of Lloyd Williams.

Collection

M 210

"VERONA"
Off Point Arena.

May 27th, 1953

Taken by drag-boat "VERONA" through the courtesy of Lloyd Williams off the coast, FORT ROSS to POINT ARENA, in about 30 fathoms.

Collected:
Sea Biscuits, 2.

Lamp Shells, 3.

Collectors Lee O.Miles
Lloyd Williams

- - - - - - - - - - - - - -

Collection M 211

DORAN PARK.
Bodega Bay Area

June 3rd, 1953.

Taken in DORAN PARK, on the inner shore (lagoon and channel) from 2 niches -

A. From Sand-clay bar at inner end ofjetty and channel next to the old pier. This bar has been much dug over by clam diggers and is rapidly becoming exhausted.

B. From the sand-silt bank of the Spit near signal where channel bends to the north. Also over worked by clam diggers.

Collected. At low tide.

A. Olivella biplicata
Macoma secta
Mya biplicata
Cardium corbis
Protothaca staminea
Solen rosaceus

B. Actaeon punctocoelata
Olivella biplicata
Saxidomus nuttalli
Macoma nasuta
Sanguinaria nuttalli
Shrimp.

Collector,

Lee O.Miles

M 212

5 June 53 — Bodega Lagoon

Collected alongside channel from old Pier, end of Doran Park, north past Markers #12 & #14. At #14, channel splits, big drain from Smith's to East. Sand, from clean to heavily silted.

Note.

Nassarius fossatus - Gould. Alive in side channel from east, between Markers 12 & 14. Active because dirt dug up from clam bed; odors.

Cardium corbis - (Clinocardium nuttalli - Conrad.

Sanguinolaria nuttallii - Conrad. 2 complete shells.

Acteon punctocoelata - Carpenter. In silt surface.

Olivella biplicata - Sowerby. Shallow sand, many.

M 213

7 June '53 — "Verona"

Taken by drag boat "Verona" (Lloyd Williams) off "Point Arena". 35-50 fathoms.

Note - Small fish
Sea biscuits!

M 214

16 June 1953 "Verona"

Off Pt Arena, in 100-125 fathoms - drag boat
(Lloyd Williams)

Hermit Crabs
Pecten caurinus - 1 valve
Eunaticina
Fusitriton oregonense - Redfield. "Hairy Triton."
Neptunea lirata - Gmelin. ? "Ridged whelk"
Neptunea tabulata - Baird. "Tabled whelk"
Cancellaria cooperi - Gabb. ?
Cardium sp - "

M 215

30 June 1953 Stewart's Point.

At Stewart's Point, at S. cove.
Bed rock - a cove underwater at mid tide plus, exposed at 0.0 tide if sea not too rough.
Sandstone strata worn off shale strata. No sand or boulders. Heavy algae make collecting precarious today.

Haliotis rufescens, a fine 5" with wide red edge.
H. walallensis - " Flamm
H. kamtschatkana - 1 Jonas
Nimitis gigantea - Gray 1 live specimen
Coral - Balanophyllia elegans - Verrill ~~Gnalt~~.

M 216

2 July '53 Bodega Lagoon

From Doran pier (Inlet) N. to Marker 14.
Same as M 212.

Same take, plus:
Nudibranchs
Pagurus sp. Black & white legs, in Nassarius.

M 217

"Verona"

5 - July - '53

Cordell Banks in over 100 fathoms, by dragboat "Verona" (Lloyd Williams)

Take:
Skate - Rajah inaxona ~~[illegible]~~ - Ray
File fish - Xenerethmus triacanthus - Gilbert
Fat " " - Taraundicthys filamentosus - Gilbert
Sea anemone on old boot sole.
Sea plume
Sea pen
Stichopus
Chimera
Sea baskets
(Pecten caurinus) Patinopecten caurinus - Gould.
To Univ. of Calif.

M 218

19 July '53 "Verona"

Taken in "Bodega Canyon" off coast in 100-150 fathoms by drag boat Verona (Lloyd Williams).

Red nudibranch
Sea anemone on Cucumaria valve.
" ", creamy, tough hide.
Fish (long tail, eel like)
" - ikin
File fish, 2 species; see M 217
Fasholithodes
Paralithodes rathbuni
Paralithodes californiense
Aphrodite Sea mouse.
Sea biscuit, small
Egg case of Ray fish
Lyopsetta exilis. "Slender sole"
Citharichthys sordidus - "Sole".

M 219

23 July '53 "Verona"

Drag boat in 50-75 fathoms, off Pt. Arena.

Mediaster aequalis - Stimpson - Thin red star.
Patinopecten caurinus - Gould. 6 valves. (2 U.C.)
Sea Biscuit. Spatangus californicus
Sea Urchin. Strongylocentrotus fragilis?
Cardium sp! 1".

M 220

25 July '53 Bodega Lagoon.

Dug in mud-sand flat in lagoon, by L. Williams

Protothaca - Japanese. Tapes sp.
P. tenerrima - Carpenter.
Saxidomus nuttalli - Const. "Washington Clam"
Geoduck. Panope generosa - Gould. Rare here.

M 221

1 Aug. '53 "Verona"

A Taken by drag boat,
Scyliorhinus brunneus - Brown Shark
nearly full grown.

B Crab, in process shedding crop. From Mt. Anea

C. Barnacle, taken north of Bodega Head 3 miles.
By Tony Carano.

M 222
see 224

17 Oct '53 "Verona"

Dragboat brings in Crab from 200-240 fathoms.

17 Sept 53. off Bodega Island
Specimen of "Red water" from Frank Hanna.
Noctiluca, not toxic.

M 223

6 Jany '54 Bodega Lagoon.

Collected on piles near and in Inlet - Jetty.

Thais lamellosa - Gmelin. Clear & colored.

Collected in sand from Jetty into lagoon, in Doran Park.

Polinices lewisii - Gould.

M 224

31 Jany '54 See 221 "Verona"

Drage at 210 - 245 fathoms off "Pegeon Point"

Spider crab
Stiny crab
Stichopus californicus - Stimpson.
Red fish (Sea Perch?)
Deepsea Skate
Brown Shark. - See 221
Red gorgonids, 8 & branching.
Sea whips
Sea baskets - 5 armed, not branched.
Hard clay from bottom (shells & worms)

M 225

1 Feb. 54

?

M 226

15 Feby '54 — See 215 — Stewart's Point

Cr Cove at Stewart's Point; low tide but rough sea, so worked only in Jones 1 & 2.

Haliotis wallalensis - Stearns
Thais lima - Gmelin
Patiria miniata - Brandt. — Sea Bat.
Margarites
Searlesia dira - Reeve — Basket shell
Thais lamellosa - Gmelin
Thais emarginata - Deshayes
Cancer gerstaecki - Eschscholtz
C. antennarius - Jones

M 227

1 March '54 — See 215 — Stewart's Point.

Following a series of storms & rough seas.

Star Fish - Patiria miniata - Brandt.
Pisaster ochraceus - Brandt.
- Evasterias troschelii? - Stimpson
Haliotis rufescens - Swainson
Observed 31 under 7"
4 over 7"
Haliotis wallalensis - Stearns
Haliotis kamtschatkana - Jonas
Margarites sp.
Calliostoma costata Martyn - now C. ligatum - gould. - Maty.
Kleidona aspera - Eschscholtz — Keyhole limpet.
Megatebennus bimaculatus - Dall. — Orange. Keyhole.

M 228

13 March '54

Bodega Lagoon – Campbell's Cove.

At Campbells Cove, on west shore just in from Inlet; and on Island just off same.
Clean sand, Low Tide – 0.3'

Tellina bodegensis – Hinds
Fish 4" – nose + head like pig; prominent fins.

Schizothaerus nuttallii – Conrad. Long shell
S. nuttallii capax – Gould – Fat "
Sakidomus nuttallii – Conrad.
Clinocardium ~~corbis~~ nuttallii – Conrad. Was C. corbis – Mem
Macoma nasuta – Conrad Bent nose.
M. secta – Conrad Sand clam.
Olivella biplicata – Sowerby.
Protothaca staminea – Conrad.

M 229

16 March '54

"Liberty"

By dragboat "Liberty" off Pigeon Point in 27.5 fathoms.

Liparid sp. Fish, rat tail, spines all along, looks like tadpole.

Crab – "Spider type legs"

Note

3 – 20 + 22 – 54 also 3-30-54 also 4/1/54
Velella washed ashore on Doran and Salmon Creek beaches, in great numbers.

M 230

M 230. April 21, '54 — Bodega Lagoon, Smith's Oyster Bed.

Old oyster bed, at Smith's wharf, silted over when dredged the bay. Silt on sand.

Ostraea. Huge specimen taken by L. Williams; alive but wasted to little meat.

M 231

25 July 54 — "Verona"

Drag boat gets "Fringed octopus", rare here.

M X2

18 Sept. 54 — Verona

Drag off Point Arena in 148 fathoms (F. Williams)

Took:

Neptunea pribilofensis – Dall.

M 232

2 Feby 55 — Stewart's Point

Surf too high, poor collecting.

Shells only –

Haliotis walallensis – Stearns

H. kamtchatkana – Jonas

M 233

Feb 4 & 5, 1955 also 2/19/55 Shell Beach

Collected at Shell Beach with J Westfall - Nudibranchs especially.

M 234

2-9-55 "Faymar"

Dragboat "Faymar", Captain Max Carlson, courtesy of Frank Lucido, dragging across sea canyons off "Cordell Banks" at 86 - 110 fathoms. Snagged rock at 91 fathoms, pulled up, had:

2. Thread Fish - 65" long. Also known as Snipe Eel from long bill. Identified by W. I. Follett, Curator of Fishes, Acad. of Sciences.
Nemichthys scolopaceus - Richardson.
1. Raja binoculata - Girard. "Big Skate"
3. Leptocottus armatus armatus - Girard. "Staghorn Sculpin"
4. Stellerina xyosterna - Jordan & Gilbert. "Prickle breast poacher"
5. Anarrhichthys ocellatus - Ayres. Young (1/2 grown) Wolf Eel.

See attached letter.

M 235

3-18-55 See 215 Stewart's Point.

At Stewart's Point, a flat 0.0 tide, low surf.

Inch.
Haliotis rufescens - Swainson - 7"
H. wallalensis - Steam
H. kamtschatkana - Jonas.

M 236-237

Jan 25, 26 & 27, 1955 Bodega Lagoon

Inside Lagoon, on sand flats, some silt in areas.

Polinices lewisii - Gould
Sanguinolaria nuttallii - Conrad. Valves
Jelly fish - many.
Aulacon punctocoelata } Many - none
Olivella biplicata } taken.

M 238

11 Feb '57 See 215 Stewart's Point

Inch
Haliotis kamtschatkana - Jonas "
H. rufescens - Swainson. Many under 7"
none taken.
Patiria miniata - Brandt. Many.
Pisaster ochraceus - Brandt "

SC I-44

Collection SC 1 SAN FELIPE, B.C.

February 17th, 1952

On the Rocky Point north of San Felipe , below Volcanoe Light;
On lava rock, no sand. Exposed to sea. Sand beaches to either side of point.
In Zones 1, 2 and upper 3.
Early afternoon at low tide, low surf.

Collections include:

Nerita

Cup and Saucer Limpet

Tegula, large, green.

Black Murex, in shallow cup on rock.

Acanthina

Shrimp, small, under rocks in upper Zone 3.

Collector

Lee O.Miles

Collection SC 2 SAN FELIPE, B.C.

February 18th, 1952

In the Sea Of Cortez , on the boulder-covered point north of the north cove at San Felipe, just south of North Mountain, adjacent to a lava flow covering granitic or porphyritic base rock.
On boulders mostly granitic, some lava, averaging 10" to 14" diameter.
This boulder pant is quite extensive even at a tide of - 0.5, with a fairly heacy surf. It is sheltered only from the North and Northwest, and from the West, moderately. Silte to gravel under and betwen boulders.
In the oyster-barnacle-tegula zone.

Collections include:

Tegula
Acanthina
Cerithidum?
Mussel
Black Murex, mostly small.
Clam, bent nose, heavy.
Clam, small, white
Petricola?
Lithofaga? Borere, pea.
Osters Oysters.
Creidula nivea
Crepidula adunca
Amphissa versiclolor
Pteria sp. Winged Oyster.

Crab, fuzzy.
Tethys? Sea Hare.
Compound Ascidea - creamy masses
Octopus, small.
Compound Ascidea, orange, orificed.
Chitons, greenish.
Brittle Stars, 2 species.

Buried in sand and gravel, Medium sized white CLAMS, taken for food.

Collector

Lee O.Miles

Collection SC 3. SAN FEPILE, B.C.

February 19th, 1952.

Same general location as SC 2, and same general conditions -
Collected out into Zones 3 and 4,
And north to the large rocks on the Point.
Bottom of base rock, granitic, overlain by a close-grained very hard, fine-textured lava.
Boulders from house sized to slab-like 2' by 3', 10" thick, intersersed by rounded boulders 10" to 14" in diameter.
No silt, little sand or gravel. Exposed to all southerly winds.

Collections include:

Same as taken in SC 2, plus

Fuzzy crab
Pagurus?, tiny.
Crab, 3", spotted.
Sea Anemone, red.
Sea Cucumbers, black.
Chitons.

Algae:
Bladder-like.
Corallines

Shells found at edge of boulder field,
Turrettella.

Collector,

Lee O. Miles

Collection SC 4 SAN FELIPE, B.C.

Febfuary 19th, 20, 1952

Same area as S.C.2, but further south to the 2nd rocky point, including the sandy beach of North Cove, as well as Reef & boulders.

Collections include:

Same as SC 2 and SC 3 plus

Conus

Worms, plumed, in calcareous tubes.

Sea Anemone, red.

Collector

Lee O.Miles

Collection SC 5 SAN FELIPE, BC

February 5th, 1952

Sand bar in SAN FELIPE COVE, north; same general area as SC 4,~~4~~ but off-shore at low tide, on a bar of near;y pure sand, seperated from shore by a shallow 20foot wide lagoon with bottom of sand overlain by a shallow deposit of silt. The beach at this point is covered with small boulders in Zones 1 and 2; an occasioanl boulder outcrops in Zones 3 and 4. These boulders are granitic with some of hard, fine textured lava.

Collections include:

Nassarius parva

Lamp shell, spear-like.

Thais (floridana)

Searlesia?

Olivella pedroana.

Collector

Lee O Miles

Collection SC 6 SAN FELIPE, B.C

February 21st, 1952

South of SAN FELIPE along the dirt road past Hotel Avalos for about 1 mile, then walk across (E) the beach row of sand dunes to the beach.
Oyster bars in Zones 2 & 3. Seaward there are 3 or 4 sand bars (depending on how low the tide is) with shallow lagoons between. The uncovered beach at 0.0 tide is 100 to 200 yards wide. The bars are of rather clean fine sand are nearly level. Some of the lagoons contain thine layer of silt; others are clean. None are stagnant.

Collections were made on the bars an d in the lagoons, as follows:

From the outermost bar and lagoon:
Sand dollars, keyhole, arrow.Maroon.
" " ", small green.
" " ", walnut shape & size.
From all bars and lagoons, including the outer:
Plinices, small
Polinices agg cases.
Conus; burrow like Olive.
Olivella pedroana?
Thais (floridana?)
Pagurus?
Oysters
Small spiral gastropods

Pelecypods - varius empty shells

Compound ascidea with the oyster.

Star fish on outer bar, half buried in sand.

Algae, red, 2".

Collector

Lee O. Miles

Collection SC 7 SAN FELIPE, B.C.

February 22nd, 1952

South of SAN FELIPE 1 mile by road along Avalos' arroyo, same as SC 6, then on sand bars and in lagoons for another 2 miles further south.
Lower low tide than SC 6, so further out.
Bars mostly clean sand; a shallow silting in some of the lagoons.

Collections include:

Sea Anemone, red, 12" to 14" long, shaped like a baseball bat, even to end of handle. Spread of "flower" about 3". Near outer edge of outer bar.
Sea Anemone, greenish white, lays "petals" on sand, contracts rapidly. 6" to 10" long, pencil shaped but crayon size; found with above but higher up on the outer bar.
Sand Dollar, arrow, keyhole; by the thousands on the outer edge of the outer bar and out in the shallow water, and in drainways. Brown-maroon.
Sand Dollars, like the above but slightly larger, circular, not notched; with the above.
Sand Dollars, small green, circular; usually above the above two, on the bar.
Black Murex; large specimns, usually heavily barnacled and rough; in the lagoons.
Hermit Crabs, possibly several species, of all sizes, in all gatropod shells.
Clam, orange, small.
Clam, white, small.
Tellina shell.
Borer shells in clay bed. Young ones are so fragile, have to be handled by neck.
Olivella podroana, plentiful, great travelers, plow long furrows.
Nassarius parva, smaller than above, bot also make long Burrows.
Star Fish, fragile armed, many on outer bars, usually at least partly covered by sand.
Sand Dollar, Porcupine, walnut shape and size; casts only.
Worm tubes, calcareous, small.

Collector

Lee O Miles

Collection SC 8 SAN FELIPE, B.C.

February 23rd, 1952

South of SAN FELIPE from 3 to 4 miles along the sand bars and lagoons at low tide, back along the steep sand-gravel upper beach at high tide mark for loose empty shells.

Collectionsinclude:

Collar of Polinices.

Sea Anemone, red, 14".

Sea Anemone, white, 8", squirts like a clam; flower-like opening.
Worm, dark-brown antennae, 1" diameter.

Clam, concentric lined, on dry sand bars, mostly toward shore.
Sea Anemone, small, ½" long, on shells.

Black Murex, large, many on Oyster Bar on 2nd bar from shore; also on sand flats, partly buried.
Polinices, small.

Olivella pedroana?, large specimens.

Hermit crabs.

Sand Dollars; point against surf or tide flow of drainage streams (tidal)
Empty shells, a variety from highe tide mark.

Collector

Lee O.Miles

Collection SC 9 SAN FELIPE, B.C.

February 24th, 1952

South of SAN FELIPE 4 and more miles to within half a mile of the cliffs, along the base of which the sand bars continue to be exposed at low tide. A stiff Northeasterly wind with much blown sand and dust.

Collections include:

Polinices

Olivella pedroana?

Pismo like, small, brown clam.

Worm casts

Wedgies

Dead shells :
Pink Murex
Turretella
Alphabet marked Clam
Cone, light.
Cone, brown
Arca.
Pteria (Winge Shell)
Spirula of Serpularia
Jingles.

Glass floats, one mexican make.
Fish Jaw bone.

Collector

Lee O.Miles

Collection SC 10 SAN FELIPE, B.C.

February 25th, 1952

Oyster Bars from 1 to 2 miles south of SAN FELIPE, at foot of steep upper beach in Zones 2 & 3. On sandstone strata protruding from upper sand beach, about 4' below high tide mark which is 50 to 60 feet up shore. Beyond the high tide mark lie sand dunes against the base of which lies much storm wrack.
At a tide of 0.0', these oyster bars are exposed, but with tide pools in and below. They are much worn.

Collections include:

At upper edge:
- Balanus?
- Acanthina

As go seaward and gradually lower:
- Cerithidium? Black and white.
- Ostrea, some.

Where wet at 0.0 tide and lower:
- Ostea predominting.
- Worms in black tubes
- Thais
- Acanthina
- Cerithidium
- Balanus, some.
- Crucibulum
- Hermit crabs (At all levels)
- Crabs, under all rocks.
- Bryozoa, dark red-brown, leaf like.
- Compound Ascidea, cream color.
- " " , Orange.
- Petricola sp. From mid-bar out, in most crevices and semi-sheltered cavities with "running water", often half covered with sand, many of these clams are found, some as much as 4" long.

Algae:
- Ulva, narrow.
- Spear-like leaf, indented.
- Brown filament.
- Iris Moss?
- Tufts, short, brown.

Collector

Lee O.Miles

Collection SC 11

SAN FELIPE, B.C.
North

February 26th, 1952

Sand beaches north of SAN FELIPE mountains north of the village. Proceeding north on Highway # 5 from the service stations at the entrance to the town, for 4.8 miles; thence on a dirt road (merely a car trail) east 1.2 miles to the Old Highway, itself an ungraded dirt road; thence south briefly to a dirt road turning east toward the beach on a gravel bench or flat, and east on this road 1.1 miles to the cliff top above the shore; or turning off this dirt road midway to the beach, to the right into a dry arroyo which leads on to the beach, but is usable only by Jeeps. This leads to BEACH "B".

Or from the point where the Old Highway was reached, south 1.2 mi. on the Old Highway 1.4 miles to another dirt road on thesleft running eastward to the beach on the alluvial flat. With four wheel drive one may leave this midway to the beach and proceed down a sandy dry arroyo to the shore. This collecting area is BEACH "A".

Collections on this date were made only at high tide, of empty shells. These shells are valuable only as indicating the nature of the intertidal zones. On this date and with a strong wind and heavy surf, the muddy water for hundreds of yards off shore indicate a wide intertidal zone, sandy but with some silt. The shells taken indicate also some boulder fields and oyster bars. See subsequent collections on BEACHES A and B for the actuality.

Collections include:

- Ostrea
- Crucibulum
- Anomia?
- Some cones
- Some Black Murdx
- Some clams, including
  - Laevicardium elatum. or Giant Cockle
  - Heavy flat white clam
  - Mussels
  - Cockles
  - Peticola?

and others.

Collector

Lee O.Milen

Collection SC 12

SAN FELIPE, B.C.
North

February 27th, 1952

At Beaches A and B, and northward for a half mile; see SC 11.

In AM, found the tide well out, but coming in rapidly.
The beach dips sharply thro Zne 1 and 2, for 50 to 150 feet; is of clean sand with some gravel. At the lower edge of this relatively steep strip, boulders begin to appear, averaging less than 1 foot in diameter, and well water-worn, of granitic and volcanis origin. From the lower edge of the steep fore-shore, boulder fields extend outward for an average of 100 yards; at the mouths of arroyos, these boulders are more or less covered by washed sand and gravel. Also this boulder area is broken here and there by patches of exposed clay and silt.
Beyond the boulder field, which is generally and oyster-balanus belt, sand bars separated by shallow lagoons extend seaward for hundreds of yards, so that at a minus tide the width of the intertidal zone is one half mile or more. The bar area is also covered with clay and silt patches where tidal carry-off has taken away the sand cover.

Collections include:

At Beach "A", in the boulder strip:
Oysters
Balanus
Clams, especially Protothaca.
Mussels
Black Murex

At Beach "B" and northward, on the steep shore, Zone 1:
Shells only.
Petricola
Crucibulum
Conus
Jingles - Anomia?
And other s

Collector

Lee O.Miles

Collection SC 13

SAN FELIPE, B.C.
North

February 28th, 1952

North of the SAN FELIPE Mountains, at Beach "B".
At low tide in early A.M. Little surf. Fog and tide in at 11.00 AM.
A. On the 3 to 7 sand bars exposed by this low tide, and in the intervening shallow lagoons, in some of which are clay and silt beds . 1,000 yards wide at low tide.
B. On boulders nearer shore, Zones 2 and 3, where the typical fauna is Ostrea-Balanus. Boulders avearge less than 12 inches
See SC 11 and 12.

Collections include:

A. Large Conus, in outer two lagoons, with silt.
Thais floridana? with covering of
Sponge, orange (on above)
Cerithidea sp.
Sea Cucumbers, small, light to brown.
Nudibranchs, in wet sand near sea; small, creamy white. (Bubble shells??)
Sand Dollar, brown, arrow, keyhole.
" " green, circular, " , small.
Wedgies
Worms in balls several inches in diam, calcareous, like brains.
Worms with yellow growth.
Polinices
Olivella pedroana
Worms, commensal with conus.
Crabs
Crab with clam valve for back.
Pagurus
Turitella
Sea Whips (Pennatulid?) in mid to outer lagoons.
Jack Knife, shells only.

B. Black Murex
Thais floridana, medium size only.
Ostrea, small, crowded too much.
Sea Anemone, pink, on boulder bottoms.
Sea Anemone, green, with above.
Crabs
Pagurus.

Collector

Lee O.Miles

Collection SC 14

SAN FELIPE, B.C.
North

February 29th, 1952

North of SAN FELIPE Mountains, at BEACH "C". See Map.
North on Highway 5 7.6 miles from SAN FELIPE, thence east on dirt road 0.5 mile to Old Highway, nrth 50 feet to arroyo, east down arroyo (Jeeps only) 0.7 mile to Beach "C". Worked north along sandy shore at foot of usual alluvial cliffs.
Boulder filled at the beach has been so badly sanded and silted that its usual fauna has been lrgely killed off. Few live Murex and Mussels were observed.

Collected:

Algae - Ulva taeniatis?

Sand Dollars, small green keyhole.

Black Murex, a few.

Oysters, a few on bottoms of boulders.

Thais floridana, large specimens.

Poliniews.

No Conus observed.

Recent kitchen middens contain Clam Shells, average 4" diameter, showing that clams are taken here for food.

Collector

Lee O.Miles

Collection SC 15

SAN FELIPE, B.C.
North

March 1st, 1952

North of SAN FELIPE on Highway 5 for 4.8 miles, east on dirt road 1.2 miles to Old Highway, south on same 1.4 miles , east on dirt road about 1.5 miles to BEACH "A", part of this last stretch down a sandy arroyo.
Collecting was at Beach "A" and south for a half mile. The alluvial cliffs above Storm mark give way to granitic and rhyolitic? rock cliffs, at the base of which and out into the sea extend boulders of lava, close-grained and hard, granite, and some shale. There is very little silt or clay.
On this date, tide not low, unable to collect out beyond the 3rd or 4th bar.

Collections include:

Pholads in soft shale

Flat worms on boulder bottoms.

Clam, small brown, like Pismo

Black Murex, on outer Oyster bar.

Cone shell, one alive.

Dentalium shell.

Olive shells, washed up on reef where boulder field extends out 200 yards from shore.

Various Pelecypod valves, especially Cardium.

Collector

Lee O.Miles

Collection SC 16

SAN FELIPE, B.C.
North

March 2nd, 1952

North of SAN FELIPE to Beach "D". See Map.
From SAN FELIPE, north along Highway 5 for 7.6 miles; thence east on dirt road 0.5 miles to Old Highway; thence north 1.4 miles to a dirt road running east to the beach for 0.75 miles.
Beach "D" is clean sand, with silt only in the lagoons in patches, well out. Boulder fields if any, are sanded over by wash from the large arroyo at this point. Alternate bars and lagoons extend out for over one mile at a Minus 1.0 foot tide. As proceed north along this shore north of San Felipe Mountains, the exposed flats become more free of boulders, and more silt.

Collections include:

Jelly Fish, 2.

Sea Squirts

Barnacles

Tagelus

Ensis

Small red clams (Tellina?)

Wedgies

Various dry shells and valves, including

Laevicardium

6" flat heavy white clam.

Black Murex shells, large.

Collector

Lee O.Miles

Collection SC 17

SAN FELIPE, B.C.
Sulfur Mine Arroyo

March 3rd, 1952

South of SAN FELIPE to Sulphur Mine at 23.3 miles; thence east toward the beach 4.4 miles to Water Hole Corral near shore, in arroyo bed; thence north along dirt road 1.8 miles to Sand Bay. Tide well in, most of collecting done at or near high tide mark. At this time, this bay is quite an impressive body of water, and here and on the outer sea beach, the bottom seems to drop away rapidly and there seems to be no bars. However, later visits at low tide - see SC 33- show that at low tide there is no bay except for tide pools and streams; and that sand bars are exposed fully a mile off shore.

Collections include:

Wedgies
Coral
Sand Dollars, green, circular, keyhole.
" " , brown, arrow, keyhole.
Hydroids
Sea Squirts
Tethys
Crabs, swimming.
Crabs, small, with heavy claws.

Empty shells:

Cowrie
Olive
Cones
Atrina (Pen)
Strombus
Pecten, 1 valve deep. one flat.
Jewel case clam, ½"
Clam, large, flat.
Laevicardium.
Bubble
Ensis
Lyonsia?
Polinices, large.
" striped or banded.

Cardium, small
" large
Pteria (Winged)
Pink Murex
Black Murex
Ficus

Collector

Lee O.Miles

Collection SC 18

SAN FELIPE, BC
Pta Diggs

March 4th, 1952

PUNTA DIGGS, 18 road miles, about 10 by boat, from SAN FELIPE. Leaving Avalos Motel, proceed south along dirt road below Hotel; at 2.8 miles, pass Little Mountain Mine; at 4.5 miles pass a branch road leading west; at 6.6 miles, reach main fork, take fork to east toward coast; at 13.1 miles reach foot of first ridge of DIGGS MTS; at 14.4 miles, a branch road takes off souteasterly for beach at SAND POINT; continue on left fork, skirting the mountains, turning abruptly north at 15.2 miles; proceeding north parralel to ridges to foundations of ole Radar Base at 17.4 miles. This is 0.5 miles across dunes to beach.

PUNTA DIGGS is actually 4 points. The first, most southerly one, is mostly clean sand; overlaying this sand toward the north is a strata of rock 3 to 4 feet thick, not in layers but seemingly consisting of many irregular flows of lava heavily embedding shell foosils, mostly pelecypod. A sndy-gravelly cove interposes between this and the 2nd point, which differs from Point 1 mostly in having a thicker rock layer. Another cove and a third point, the rock strata increasing in thickness to 10 to 12 feet, similar in composition to that of the southerly points but with some layers of nearly shell less sandstone. Here the rock strata submerges and extends an undetermined distance to sea. The most northerly point resembles point 3. The origin of these fossiliferous strata was not determined; the main body of DIGGS MOUNTAIN is granitic, a batholith that has eroded into a number of radiating ridges. Heavy shrubbery grows at the base of these mountains. Near the Radar Station lies and unusually dense grove of sajuaros. A similar stand lies west of the ridges. On the dunes east and south, sand lilies, large white evening primroses, mallow and various composites are plentiful at this season.

Collections along the high tide mark, include:

Pink Murex
Black Murex, alive.
Nerita in the splash zone.
Petricola? alive.
Ensis shells
Protothaca
Olive
Ptria (Wing)
Star fish, dried.
Hydroids
Tethys
Gorgonids
Encrustations, various.
Corralines

Collector
Lee O.Miles

Collection SC 19

SAN FELIPE, B.C.
North

March 5th, 1958

North of SAN FELIPE at Station "A", collecting south along the beach, east of the mountains, past 3 granitic points and the coves they contain. Boulders, sand and gravel are almost purely granitic, with little silt, and s relatively narrow (200 yards) belt of sand bars exposed at low tide.

Collections this date were made in the Ostrea-Balanus zone:

Black Murex, in plenty, rather clean.

Petricola?

Prototheca

Limpets , plentiful.

Crabs, many

Flat Worms

Chitons

Thais

Crucibulum

Fish - eel like, &c

ALGAE

Collector

Lee O.Miles

Collection SC 20

SAN FELIPE, B.C.
Pta Diggs

March 6th, 1952

South of DIGGS MTS at SAND POINT.
From Avalos Motel in San Felipe, south6.6 miles; here take to east or left fork and proceed southeasterly 6.5 miles to the foot of the first ridge fo the Diggs Mts; continue east 1.3 miles; take the right fork 1.1 miles, thence an additional 1.2 miles along the left fork to the top of a low mesa of bench 16.7 miles from Avalos. This overlooks the sand dunes which extend a half mile to the beach. A Jeep can make this half mile, but with difficulty.
SAND POINT extends briefly to the east, and is a fine repository for empty shells brought in by the surf at high tide. The foreshore is abrupt and narrow, of clean sand and gravel; from its foot, low sand bars extend a mile to seaward, running at a slight angle to the beach, draing slightly to the north by half a dozen lagoons. An occasional bed of clay or sand-covered silt, or silt-covered sand , is found.

Collections include:Shells empty, from high tide mark.
Tellina, red
Conus, small dotted.
Olive
Olivella pedroana
Cardiums
Laevicardium, fairly abundant.
Dosinia ponderosa, white, circular, flat, 4"-6".
Ensis
Barnacle, red,large.
Barnacle, small, volcano.
Eggshell cardium
Black Murex
Polinives, large, brown.
" , small, white
" banded, gray, medium.
Sand Dollars, green, circular, keyhole.
Aletes (Like worm tubes.)
Ficus
Donax
Nassarius parva?
Pholads
Cast of Small spider crab

Collector

Leo O.Miles

Collection SC 21

SAN FELIPE, B.C.
Pte Diggs

March 7th, 1952

Same collecting area as yesterday's SC 20; storm last night has enriched the beach, especially at the sandy point.

Collections include the following shells:

Same as collected in SC 20, plus

Calliostoma

Architectoma

Cardium

Encrustations, like stalagmites.

Ensis

Geoduck? valve

Macoma, bent nose.

Collector

Lee O.Miles

Collection SC 22

SAN FELIPE, B.C.
Punta Diggs

March 8th, 1952

South of Avalos Motel in SAN FELIPE about 16.7 miles, and south of Punta Diggs and the Diggs Mountains, over the same areas collected in SC 20 and SC 21, but extending several miles further south along the sandy beach, and out on the sand bars in Zones 3 & 4. The beaches were of clean and coarse sand and gravel, with only a few small cobbles; with some silt in patches in the lagoons.

Collections include alive:

Cardium, small
Pismo-like small brown clam.
Olive
Olivella
Polinices, recluziana?
" banded, gray
" milk white. (Natica)
Sea Anemone on Polinices,
" " 12", white, in sand.
Hermite crab, large, heavy claws
Thais floridana?
Iris lamellifer? Ribbed Clam.

Dead shells:
Turritella
Laevicardium
Dosinia
Atrina (Sea Pen)
Pteria (Winged)
Ensis
Tellina?, pink, to 4".
Casts of Porcupine sand dollar, walnut shape and size.
Etc.

Collector,

Lee O.Miles

Collection SC 23

SAN FELIPE, B.C.
Punta Diggs

March 9th, 1952

South of San Felipe and the Diggs Mountains and Point, over the same areas as in SC 20 and SC 21, but further out on Pelican Bar, a good mile long and the highest of the bars off Sand Point. One bar and intervening lagoon lies to the seaward, and much marine life has been washed out of it and on to Pelican Bar, especially on the west or landward side.

Collections include:

Alive:

- Olive. A plowing gastropod, easily located.
- Olivella
- Ridged Clam, 1½ clam
- Natica (White, small)
- Polinices, gray, banded.
- Donax
- Crepidula on Polinices
- Compound Ascidea
- Polinices, (Reclusiana?)
- Sea Squirts

Dead:

- Atrina, small (Sea Pen)
- Pecten diegensis? One flat valve.
- Chlamys (Scollops)
- Ensis
- Laevicardium
- Pink Murex
- Calliostoma
- Conus
- Red Tellina
- Turritella

ALGAE

Collector

Lee O.Miles

Collection SC 24 SAN FELIPE, B.C.
North

March 10th, 1952

Collected briefly (not a low tide) at Beach "E", well north of previous collections north of SAN FELIPE and its mountains - From the Service Stations at the entrance to town, south along paved highway # 5 for 7.7 miles; thence east son a dirt road 0.4 mile to the Old Highway (dirt); thence north; at 0.1 miles could have turned east to beach but did not, continued north 1.7 miles and turned east to beach parallel to an arroyo for 1.4 miles.
The beach at this point is sand and gravel with silt and clay much in evidence, apparently increasing as go north toward the head of the Gulf and the mouth of the Colorado River.
The alluvial cliffs fronting the beach have been gradually getting lower and have disappeared at Beach "E".
Many shells are present, semi-fossiliferous, blue from the clay in which they have been embedded; of present day varieties.

Collections at high tide and at storm marks include:

Ficus

Kelletii?

Aletes

Crucibulum

Pecten

Cardium

Black Murex

&c.

Collector

Lee O.Miles

Collection SC 25

SAN FELIPE, B.C.
Punta Diggs

April 1st, 1952

South of PUNTA DIGGS, on sand flats exposed at -0.5 ' tide, and at high tide mark on steep upper beach. Mostly in Zones 2 & 3, Zone 4 not exposed at this tide.
See SC 18

Collections include:

Live -
- Hermit crab in Pink Murex shell.
- Olive
- Conus
- Small crab
- Sand Dollar, small, green, keyhole.
- Natica lactaea
- Olivella
- Donax
- Clam, small, brown.

Shells only -
- Turritella
- Cowrie
- Bulla
- Small clam
- Blue crab cast.

Collector

See O.Miles

Collection SC 26

SAN FELIPE, B.C.
North - "A"

April 2nd, 1952

North of SAN FELIPE MTS at Station "A". Because of tide, unable to get far out on sand bars, collected mostly on inner bars and among small granite boulders, and in pools. See also SC 10, 11, 15, & 19.

Collections include:

Blue Crabs in pools.

Small crabs below boulders.

Mussels

Protothacus

Octopi

Balanus

Ostrea

Jelly Fish

Sponge on Thais floridana?

Crucibulum

Drills

Sea Anemone on bottom of boulder.

Yellow polyp?

Algae, 3 v

Collector

Leo O.Miles

Collection SC 27

SAN FELIPE, B.C.
North - "D"

April 3rd, 1952

North of SAN FELIPE MTS to Beach "D", driving to cliff top, thence down gully cutting thro these alluvial cliffs to shore.
Tide - 0.3', less than half of bars exposed. Surf moderate, but water muddy.
Accompanied by a Mr. Nichols, malacologist of Riverside, Cal.
See also SC 16

Collections include:

Polinices, banded, brown

Balanus

Mytilus

Thais floridana?

Crucibulum

Black Murex, large, heavily barnacled.

Cerithidea?

Collector

Lee O.Miles

Collection SC 28

SAN FELIPE, B.C.
Punta Diggs

April 4th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars exposed at low tide, and in intervening lagoons and tide streams.
See also SC 20, 21, 22 & 23.

Collections include:

Hermit crab
Sea Anemone } all on a Black Murex shell.
Hydroids

Natica lactea?

Banded Polinices

Polinices sp. Large brown.

Clam, small brown, like Piano.

Olive

Olivella

Gorgonid, red

Gorgonid, yellow

Black Murex

Also shells of above, empty, and others -

Pecten, flat valve.

Collector

Lee O. Miles

Collection SC 29

SAN FELIPE, B.C.
Punta Diggs

April 5th, 1952

South of PUNTA DIGGS, east of Radar Station.
Steep upper beach of sand and gravel , backed by low alluvial cliffs, in turn backed by sand dunes. At foot of steep beach, mostly Zone 1 and 2, sand bars with usual lagoons are exposed at low tide in Zones 3 and 4. Some boulder fields, Z 3.
See also SC SC 18 and 25.

Collections include:

Pteria, wing shell.
Cling Fish
Other small fish
Eggs, yellow, in matted cords.
Crab case
Gorgonids, pale.
Crabs, small black, heavy claws; in boulders.
Hermit Crabs
Thais floridana
Black Murex, especially small, white.
Polinices plain, brown
" banded
Nudibranchs?
Olive
Olivella
Sea urchins, 2 species?
Littorines, speckled.
Clams, small, asst'd; white, blue, pink, brown.
Atrija, rough, in boulder fields.
Scotch Bonnet, 2 mating at foot of steep beach, taken by Browns.

SHELLS:

Thais, large mouth, orange interior.
Spindle shells, small, with Pagurus.

ALGAE -

Codium fragile

Collector

Lee G Miles

Collection SC 30

SAN FELIPE, B.C.
Punta Diggs

April 6th, 1952

South of PUNTA DIGGS, east of Radar Station.
Same as SC 29, but out on first sand bar (from shore) and in intervening lagoon. Practically no silte - a long lagoon, shallow, much of bottom fairly free of ripple marks, sandy, with a little surface silt in patches.
See also SC 29.

Collections include:
Conus sp, where some silt.
Black Murex, most common, small.
Pteria, ving shall, among boulders with above.
Atrina, rough, boulder field.
Olive - plentiful, along and in lagoon, both shores.
Polinices, large, plain.
" Grey, mottled
" White
" striped br & wh.
Tehtys
Crab, pebbled claws
Other crabs
Sinum scopulosum - Bar Shell.
Clam, brown, Piano like.
Octopus
Cling Fish
Small frilled fish
Shrimp. dark green.
Gorgonia, Red
Olivella
Nassarius parva?
Spindle shells
Sand Dollars, small keyhole.
Worms, distended, in sand and silt, flower-like.
Brittle Stars
Twenty Ray, knobby stars.

ALGAE, 2.

Collector

Lee O.Miles

Collection SC 31

SAN FELIPE, B.C.
South

April 9th, 1952

South of SAN FELIPE on sand flats outside the oyster bars, and in intervening lagoons. Area too well picked over by natives as well as tourists.
See also SC 6,7,8,9,10.

Collections included:

Sand Dollars, keyhole, large, brown.

Olive

Neck of large clam seen on inner margin of sand bar 2nd out from Shore; unable dig him out account sand caved in, and quite deep.

ALGAE.

Collector

Lee O.Miles

Collection SC 32

SAN FELIPE, B.C.
North - "A"

April 10th, 1952

North of San Felipe Peaks, at Bench "A";
in early morning at low tide;
to the south of the main arroyo draing past the mountains,
among the boulders in Zones 1 to 3.
See also SC 11, 15, 19, 26.

Collections include:

Conus, where sand is overlain by silt, thinly.

Olive

Olivella

Worm tubes

Crabs, small, round, marked.

Polinices sp. Large, plain.

Spindle

Turritella

Black Murex

ALGAE, on boulders.

Collector

Lee O.Miles

Collection SC 33

SAN FELIPE, B.C.
Sand Bay

April 11th, 1952

At SAND BAY, , between PUNTA FERMIN and PUNTA BIGGS; reached by by dirt rad south of SAN FELIPE for 22.8 miles to SULPHER MINES, thence on south 1.5 miles, then east 4.4 miles to Water Hole and corral near beach, thence north parallel to beach for 1.8 miles to south edge of SAND BAY. This Bay, see SC 17, is almost circular at high tide; but at low tide is an expanse of exposed sand bars, extending seaward over 1½ miles. At the west edge of the "bay" are several exposed boulder fields. Silt and clay are found in patches, especially in one of the tidal run-offs.

Collections include:

On Oyster bars (Boulders)
- Oysters
- Crabs
- Black Murex in silt nearby
- Pink Murex, prdying on Conus.
- Sea Anemone
- Twenty ray beaded star fish

On Sand Flats, especially well out:
- Conus, large species, a few.
- Conus regularis , spotted, many.
- Polinices, brown banded
- " small white.
- " plain, brown.
- Olive; most plentiful.
- Olivella
- Donax

On sand flats, closer to shore:
- Turitella, small.
- Olivella
- Sea Anemone, long, creamy, buried.
- Polinices, large brown.
- Donax

In silt on sand:
- Conus, large
- Polinices, large brown.

A rich collecting area.

Collector
Leo O.Miles

Collection SC 34

SAN FELIPE, B.C.
Sulfur Mine.

April 17th, 1952

From camp at water hole and corral near mouth of ARROYO ESTRELLA (Star Gulch), collected south along beach for some 4 miles. Sand dunes above alluvial cliffs, low here; below cliffs, sand beach, low and narrow, storm swept, then high tide marks at top of steep fore shore, Zones 1 & 2; and below this, seaward, 2 to 4 sand bars with usual dividing lagoons and bisecting tidal run-offs; with occasionla exposed tongues of lava boulders running out to low tide into Zone 4.

Collections include:

On Sand Bars:

Olive
Olivella
Polinices, plain brown.
Sand Dollars, keyhole, green.
" " ", brown, arrow shped.
" " " " circular, large.
Scotch Bonnet, buried like Polinices.
Twenty Ray Star Fish, many.

On rocky boulder fields:

Pteria sterna.
Atrina, rough.
Strombus pugilis?
" alatus ?
ALGAE, broad leaf, with
Bryozoa on above.
Compound Ascidcea, red.
" " yellow
Worm, red.
" black.
Crab, heavy claw.
Spindle shells, 3" to 4". Alive.
Star Fish, long spined, 5 arms.

In lagoons.

Pink Murex
Sea Urchins, long heavy spines.
" " long, slender purple spines.
Hermit crab , large, in Black Murex.
Twenty ray Star Fish.

Whale skeleton midway on beach, near high tide mark.

Collector

Leo O.Miles

Collection SC 35

SAN FELIPE, B.C.
Sand Bay

April 13th, 1952

See also SC 17 and 33.
North of Camp at Water hole and corral in ARROYO ESTRELLA, east of Sulphur Mines, in SAND BAY and on outer bars as much as 1½ miles off high tide mark.

Collections include:
From bars, lagoons and run-offs ½ to 1 mile offshore.
Conus regularis (Spotted)
Olive
Olivella
Clam, brown to 2.5 inches.
Pomatulids
Spider Crabs
Sand Dollars, keyhole, arrow.
" " " small, green
" " " large, brown, circular.
Polinices, banded.
Donax
ALGAE, like knotted string.

From bars and lagoons inshore, in "Bay", on or near Oyster Bars.
Black Murex
Cones, large striped, in pairs.
Polinices, large, plain.
Drills
Cyatems
Balanus
Cerithidium
Nassarius parva?
Hermit crab in Polini cos.

From Splash Zone, in moist sand:
Fiddler Crabs.

Collector

Lee O. Miles

Collection SC 36

SAN FELIPE, B.C.
Punta Diggs.

April 15th, 1952

South of San Felipe and south of DIGGS POINT AND MTS, just north of the beach "road" past the old Radar Station - north from this road about 1 mile.
Worked sand bars and boulder fields; the inner lagoon and the foot of the steep shore, Zone 2, especially prolific.

Collections include:

Olive
Polinices, plain brown.
" banded
" grey, mottled.
Black Murex
Olivella
Gorgonids
Atrina, rough
Clam, small brown, Pismo-like.
Thais fluridana?
Keyhole limpets
Crepidula nivea
Chitons
Turritella
Bulla sp. Look like nudibranchs.
Crabs

Cling Fish
Fish, small, from under boulders.
Shrimp.
Crackers under rocks; not taken.

Collector,

Lee O.Miles

Collection SC 37 SAN FELIPE, B.C,
North "A"

April 16th, 1952

North of SAN FELIPE MTS, at Beach "A";
worked sand bars and boulder fields, north from the arroyo
down which reached the shore, to and past beach "B".

Collections include:
Black Murex
Palinices, plain, large.
Polinices, grey, mottled.

Collector

Lee O.Miles

- -

Collection SC 38 SAN FELIPE, B.C.
South by boat.

April 17th, 1952

South by small boat to N. end of PUNTA DIGGS, to a double
cove, both shallow and exposed; tide not low, little result;
but shells on exposed beach indicate rich yield at a lower
tide. Today, only one bar exposed.
South of this double cove, strata of fossiliferous rock
slants down into water gradually. Not greatly worn.

Collections include:

Crabs	Black Murex
Nerita	Tegula
Chitons	Limpets
Crucibulum	Olive
Clam, heavy, white; valves.	Turritella
Oyster	Cropidula adunca
Pea borer	

Collector

Lee O.Miles

Collection SC 39 SAN FELIPE, B.C.
Rocks at Light.

April 22nd, 1952

In SAN FELIPE, on rocks below Volcano Light, opposite Miramar Cafe. Rocks volcanic, no sand bars, some pockets.

Collections include:
Atrina shell.
Limpets, blue centers.
Crucibulum
Black Murex, in pools.
Hermit crabs in Black Murex shells
Crepidula nivea.

Collector
Lee O.Miles

- -

Collections SC 40 SAN FELIPE, B.C.
N. of 1st N. Peak.

April 23rd and 24th, 1952.

In small cove north of first north peak north of SAN FELIPE, at end of dirt road passing camps along shore at north end of town. Sand dunes merge into upper beach, not as steep as usual on this shore; the upper sand and gravel beach with boulder (granitic) fields sloping down gradually to sand bar and adjacent lagoon; some shallow silt in this lagoon.

Collections include:
Balanus
Oysters, few.
Black Murex
Conus, with silt, as usual.
Limpets
Margarites
Polinices, plain, brown.
Protothaca sp.
Petricola
Barnacles, red.

Collector,

Lee O.Miles

Collection SC 41

SAN FELIPE, B.C.
Punta Digas, S.

April 25th, 1952

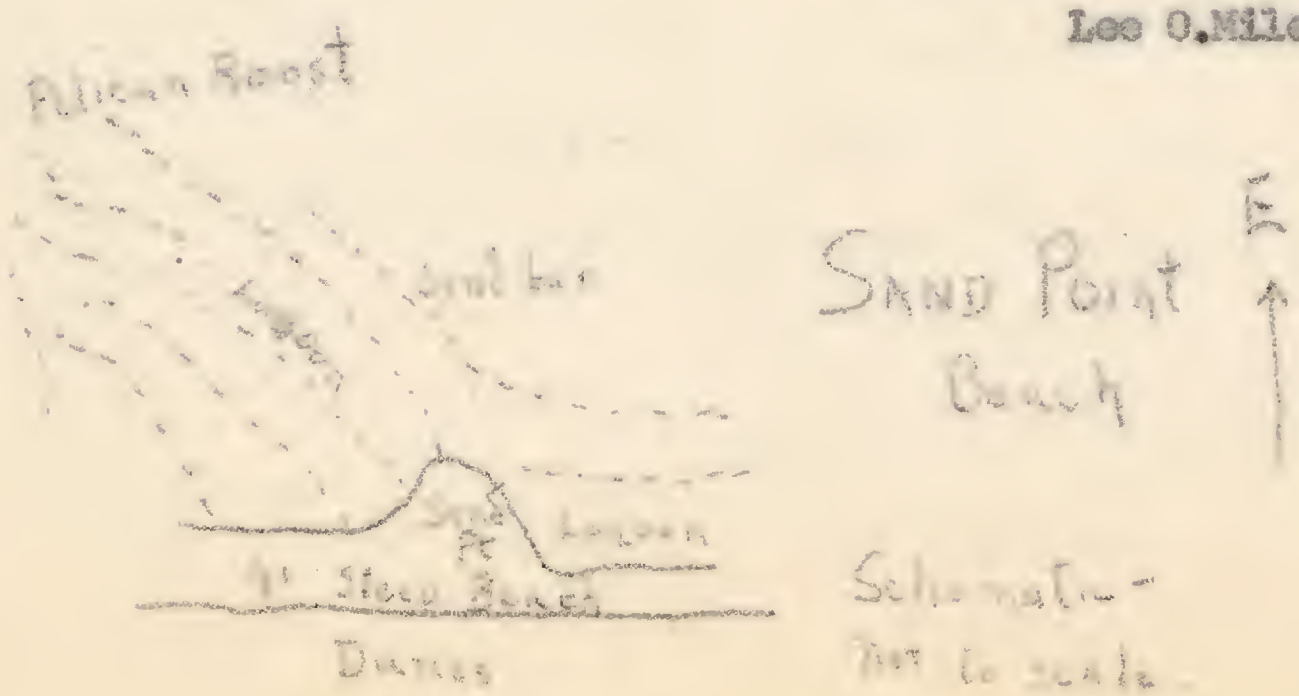
At SAND POINT south of PUNTA DIGGS, on sand bars reaching east and north, with slight curve back toward shore, with intervening lagoons shallow and without silt except in occasional shallow patches.
The end of the bars where pelicans roost during low tide is over 2 miles from shore.
The inner beach is about 75 feet wide, 20 degree slope.
See also SC 20, 21, 23, 28, 41.

Collections include:

- Cones
- Olive
- Olivella
- Polinices, grey.
- " plain brown.
- " bonded
- " white, small
- Donax
- Crabs
- Sea Squirts
- Scotch Bonnet, shell only.
- Ehsis
- Pink Murex
- Black Murex
- Turritella
- Laevicardium
- Sponge
- Gorgonid, white
- Aphrodite, sea mouse; in sand, burrows like Olive.
- Spider crab
- Cruciblum shells
- Hydroids

Collector

Lee O.Miles



Collection SC 42 SAN FELIPE, B.C.
Sulfur Mine

April 26th, 1952

From camp at Waterhole and corral in ARROYO BETHELLA east of Sulphur Mines and 23 miles south of SAN FELIPE, south along beach for about 5 miles, nearly to PUNTA SAN FERMIN.
Fore shore usual steep sand and gravel beach, narrow.
Bars alternate with lagoons and tidal run-offs, and in patches, contain some clay and silt.
Many rather extensive boulder fields reach from the steep foreshore out to Zone 4, low tide, and beyond. Many of these fields are either being newly uncovered, or newly covered by sand; perhaps both.

Collections include:
Sea Urchins, fine long spines, purple.
" " Heavy spines, greenish.
Sponge, red, in Zone 2 (Balanus), in beds.
Bryozoa, red
Coralline hydroid, purple.
Trivia shell.
Spindles
Conus regularis
Olive
Olivella
Polinices, plain brown
" Grey
" White, small
Glan, small brown, like Piano
Dosinia sp.
Donax
Strombus pugilis
" alatus shell.
Turritella
Ptoria sterna
Thais, large orange aperture.
Atrina, rough.
Bulla shells
Crabs, Z 3
Fiddler crabs, Z 1 and Splash Zone.
Aletus?
Starfish, like Henricia a bit.
Spider crab, small
ALGAE, small, bottom of boulders.

Carcass of 10' shark
Whale skeleton
Discs from backbone of PORPOISE
Disc from Whale?

Collector

Lee O.Miles

Collection SC 43

SAN FELIPE, B.C.
Sulphur Mine.

April 27, 1952

From ARROYO ESTRELLA, collected north over 2 miles along beach to opposite mouth of SAND BAY, mostly on first bar out. Bars run north parallel to the chest, are of nearly pure sand, hard packed, without any boulders or silt. Fully exposed to all winds on the Gulf. The fore shore is steep, as usual, and the storm bench above it is wider than usual. No alluvial cliffs, but sand dunes covered with sparse brush are above the storm mark. As near SAND BAY, the bars and lagoons bend N.E. away from t the shore.

Collections include:

In first lagoon below steep fore shore:

Sand Dollars, green circular keyhole, juvenile.
" " brown, arrow shape, " juvenile, size 10¢ to 25¢.

On Oblislabers off shore:

Olivella
Strombus pugilis kicking out of sand near mid-bar.
Oliva
Donax
Clam, brown, Pisso-like.
Crabs, mottled, chunky; squirt.
Turritella, in hard sand.
Cerithidium
Jack knife clam; move along surface 12" to 14", then dig in.
Black Murex; covered with Algae and Hydroids.
Limpets, white, conical, attached to bottoms of old shells or sand dollars, which they lift off sand.
Star Fish, sand type, fragile.
Conus regularis; in hard sand, apex down, canal just out.
Sailor's Ear, valve only.
Pteria sterna, Wing Shell.
Pecten shells
Hydroids
Crabs, swimming.
Rope Compound Ascidea, long ropes, with nodes, not attached.

ALGAE

Collector

Lee O.Miles

Collection SC 44

SAN FELIPE, B.C.
N. of 1st N. Mt.

April 29th, 1952

Near SAN FELIPE, north of the first north mountain;
Boulder field, in Zones 1, 2 and upper 3. Boulders almost
entirely granitic, well worn and rounded.

Collections include:

Barnacles

Black Murex

Oliva

Chitons
"
"
"

Limpets
"

Clam, bent nose, heavy shell.

Crucibulum

Amphissa versicolor

Button shell

Tegula

From Senor Avalos, shells only:

Murex, spider

Ficus

Scotch Bonnet.

Collector

Lee O.Miles

Collection SC 1 SAN FELIPE, B.C.

February 17th, 1952

On the Rocky Point north of San Felipe , below Volcanoe Light;
On lava rock, no sand. Exposed to sea. Sand beaches to either side of point.
In Zones 1, 2 and upper 3.
Early afternoon at low tide, low surf.

Collections include:

Nerita

Cup and Saucer Limpet

Tegula, large, green.

Black Murex, in shallow cup on rock.

Acanthina

Shrimp, small, under rocks in upper Zone 3.

Collector

Lee O.Miles

Collection SC 2 SAN FELIPE, B.C.

February 18th, 1952

In the Sea Of Cortez , on the boulder-covered point north of the north cove at San Felipe, just south of North Mountain, adjacent to a lava flow covering granitic or porphyritic base rock.
On boulders mostly granitic, some lava, averaging 10" to 14" diameter.
This boulder pint is quite extensive even at a tide of - 0.5, with a fairly heavy surf. It is sheltered only from the North and Northwest, and from the West, moderately. Silte to gravel under and betwen boulders.
In the oyster-barnacle-tegula zone.

Collections include:

Tegula
Acanthina
Cerithidum?
Mussel
Black Murex, mostly small.
Clam, bent nose, heavy.
Clam, small, white
Petricola?
Lithofaga? Borers, poo.
Osters Oysters.
Crcidula nivea
Crepidula adunca
Amphissa versicolor
Pteria sp. Winged Oyster.

Crab, fuzzy.
Tethys? Sea Hare.
Compound Ascidea - creamy masses
Octopus, small.
Compound Ascidea, orange, orificed.
Chitons, greenish.
Brittle Stars, 2 species.

Buried in sand and gravel, Medium sized white CLAMS, taken for food.

Collector

Lee O.Miles

Collection SC 3. SAN FERMIN, B.C.

February 19th, 1952

Same general location as SC 2, and same general conditions -
Collected out into Zones 3 and 4,
And north to the large rocks on the Point.
Bottom of base rock, granitic, overlain by a close-grained very hard, fine-textured lava.
Boulders from house sized to slab-like 2' by 3', 10" thick, interspersed by rounded boulders 10" to 14" in diameter.
No silt, little sand or gravel. Exposed to all southerly winds.

Collections include:

Same as taken in SC 2, plus

Fuzzy crab
Pagurus?, tiny.
Crab, 3", spotted.
Sea Anemone, red.
Sea Cucumbers, black.
Chitons.

Algae:
Bladder-like.
Corallines

Shells found at edge of boulder field,
Turrottella.

Collector,

Leo O. Miles

Collection SC 4 SAN FELIPE, B.C.

Feb~~f~~uary 20th, 1952

Same area as S.C.2, but further south to the 2nd rocky point, including the sandy beach of North Cove, as well as Reef & boulders.

Collections include:

Same as SC 2 and SC 3 plus

Corals

Worms, plumed, in calcareous tubes.

~~/~~Sea Anemone, red.

Collector

Lee O. Miles

Collection SC 5 SAN FELIPE, BC

February 5th, 1952

Sand bar in SAN FELIPE COVE, north; same general area as SC 4,5 but off-shore at low tide, on a bar of near;y pure sand, seperated from shore by a shallow 20foot wide lagoon with botten of sand overlain by a shallow deposit of silt. The beach at this point is covered with small boulders in Zones 1 and 2; an occasional boulder outcrops in Zones 3 and 4. These boulders are granitic with some of hard, fine textured lava.

Collections include:

Nassarius parva

Lamp shell, spear-like.

Thais (floridana)

Searlesia?

Olivella pedroana.

Collector

Lee O.Miles

Collection SC 6 SAN FELIPE, B.C

February 21st, 1952

South of SAN FELIPE along the dirt road past Hotel Avalon for about 1 mile, then walk across (E) the beach row of sand dunes to the beach.
Oyster bars in Zones 2 & 3. Seaward there are 3 or 4 sand bars (depending on how low the tide is) with shallow lagoons between. The uncovered beach at 0.0 tide is 100 to 200 yards wide. The bars are of rather clean fine sand are nearly level. Some of the lagoons contain thine layer of silt; others are clean. None are stagnant.

Collections were made on the bars an d in the lagoons, as follows:

From the outermost bar and lagoon:
Sand dollars, keyhole, arrow.Maroon.
" " ", small green.
" " ", walnut shape & size.
From all bars and lagoons, including the outer:
Plinicos, small
Polinicos egg cases.
Conus; burrow like Olivo.
Olivella pedroana?
Thais (floridana?)
Pagurus?
Oysters
Small spiral gastropods

Pelecypods - varius empty shells

Compound ascidea with the oyster.

Star fish on outer bar, half buried in sand.

Algae, red, 2".

Collector

Lee O. Miles

Collection SC 7 SAN FELIPE, B.C.

February 22nd, 1952

South of SAN FELIPE 1 mile by road along Avalos' arroyo, same as SC 6, then on sand bars and in lagoons for another 2 miles further south.
Lower low tide than SC 6, so further out.
Bars mostly clean sand; a shallow silting in some of the lagoons.

Collections include:

Sea Anemone, red, 12" to 14" long, shaped like a baseball bat, even to end of handle. Spread of "flower" about 3". Near outer edge of outer bar.
Sea Anemone, greenish white, lays "petals" on sand, contracts rapidly. 6" to 10" long, pencil shaped but crayon size; found with above but higher up on the outer bar.
Sand Dollar, arrow, keyhole; by the thousands on the outer edge of the outer bar and out in the shallow water, and in drainays. Brown-maroon.
Sand Dollars, like the above but slightly larger, circular, not notched; with the above.
Sand Dollars, small green, circular; usually above the above two, on the bar.
Black Murex; large specimns, usually heavily barnacled and rough; in the lagoons.
Hermit Crabs, possibly several species, of all sizes, in all gatroped shells.
Clam, orange, small.
Clam, white, small.
Tellina shell.
Borer shells in clay bed. Young ones are so fragile, have to be handled by neck.
Olivella pedroana, plentiful, great travelers, plow long furrows.
Nassarius parva, smaller than above, but also make long furrows.
Star Fish, fragile armed, many on outer bars, usually at least partly covered by sand.
Sand Dollar, Porcupine, walnut shape and size, casts only.
Worm tubes, calcareous, small.

Collector

Lee O Miles

Collection SC 8 SAN FELIPE, B.C.

February 23rd, 1952

South of SAN FELIPE from 3 to 4 miles along the sand bars and lagoons at low tide, back along the steep sand-gravel upper beach at high tide mark for loose empty shells.

Collectionsincluld:

Collar of Polinices.

Sea Anemone, red, 1¼".

Sea Anemone, white, 8", squirts like a clam; flower-like opening.
Worm, dark-brown antennae, 1" diameter.

Clam, concentric lined, on dry sand bars, mostly toward shore.
Sea Anemone, small, ½" long, on shells.

Black Murex, large, many on Oyster Bar on 2nd bar from shore; also on sand flats, partly buried.
Polinices, small.

Olivella pedroana?, large specimens.

Hermit crabs.

Sand Dollars; point against surf or tide flow of drainage streams (tidal)
Empty shells, a variety from highe tide mark.

Collector

Lee O.Miles

Collection SC 9 SAN FELIPE, B.C.

February 24th, 1952

South of SAN FELIPE 4 and more miles to within half a mile of the cliffs, along the base of which the sand bars continue to be exposed at low tide. A stiff Northeasterly wind with much blown sand and dust.

Collections include:

Polinices

Olivella pedroana?

Piano like, small, brown clam.

Worm casts

Wedgies

Dead shells :
Pink Murex
Turrotella
Alphabet marked Clam
Cone, light.
Cone, brown
Arca.
Pteria (Wings Shell)
Spirula of Serpularia
Jingles

Glass floats, one merican make.
Fish Jaw bone.

Collector

Leo O.Miles

Collection SC 10 SAN FELIPE, B.C.

February 25th, 1952

Oyster Bars from 1 to 2 miles south of SAN FELIPE, at foot of steep upper beach in Zones 2 & 3. On sandstone strata protruding from upper sand beach, about 4' below high tide mark which is 50 to 60 feet up shore. Beyond the high tide mark lie sand dunes against the base of which lies much storm wrack.
At a tide of 0.0', these oyster bars are exposed, but with tide pools in and below. They are much worn.

Collections include:

At upper edge:
Balanus?
Acanthina

As go seaward and gradually lower:
Cerithidium? Black and white.
Ostrea, some.

Where wet at 0.0 tide and lower:
Ostea predaninting.
Worms in black tubes
Thais
Acanthina
Cerithidium
Balanus, some.
Crucibulum
Hermit crabs (At all levels)
Crabs, under all rocks.
Bryozoa, dark red-brown, leaf like.
Compound Ascidea, cream color.
" " , Orange.
Petricola sp. From mid-bar out, in most crevices and semi-sheltered cavities with "running water", often half covered with sand, many of these clams are found, some as much as 4" long.

Algae:
Ulva, narrow.
Spear-like leaf, indented.
Brown filament.
Iris None?
Tufts, short, brown.

Collector

Lee O.Miles

Collection SC 11

SAN FELIPE, B.C.
North

February 26th, 1952

Sand beaches north of SAN FELIPE mountains north of the village. Proceeding north on Highway # 5 from the service stations at the entrance to the town, for 4.8 miles; thence on a dirt road (merely a car trail) east 1.2 miles to the Old Highway, itself an ungraded dirt road; thence south briefly to a dirt road turning east toward the beach on a gravel bench or flat, and east on this road 1.1 miles to the cliff top above the shore; or turning off this dirt road midway to the beach, to the right into a dry arroyo which leads on to the beach, but is usable only by Jeeps. This leads to BEACH "B".

Or from the point where the Old Highway was reached, south 1.2 mi. on the Old Highway 1.4 miles to another dirt road on the left running eastward to the beach on the alluvial flat. With four wheel drive one may leave this midway to the beach and proceed down a sandy dry arroyo to the shore. This collecting area is BEACH "A".

Collections on this date were made only at high tide, of empty shells. These shells are valuable only as indicating the nature of the intertidal zones. On this date and with a strong wind and heavy surf, the muddy water for hundreds of yards off shore indicate a wide intertidal zone, sandy but with some silt. The shells taken indicate also some boulder fields and oyster bars. See subsequent collections on BEACHES A and B for the actuality.

Collections include:

- Ostrea
- Crucibulum
- Anomia?
- Some cones
- Some Black Murex
- Some clams, including
  - Laevicardium elatum. or Giant Cockle
  - Heavy flat white clam
  - Mussels
  - Cockles
  - Petricola?

and others.

Collector

Lee O.Miles

Collection SC 12

SAN FELIPE, B.C.
North

February 27th, 1952

At Beaches A and B, and northward for a half miles see SC 11.

In AM, found the tide well out, but coming in rapidly.
The beach dips sharply thro Zne 1 and 2, for 50 to 150 feet; is of clean sand with some gravel. At the lower edge of this relatively steep strip, boulders begin to appear, averaging less than 1 foot in diameter, and well water-worn, of granitic and volcanic origin. From the lower edge of the steep fore-shore, boulder fields extend outward for an average of 100 yards; at the mouths of arroyos, these boulders are more or less covered by washed sand and gravel. Also this boulder area is broken here and there by patches of exposed clay and silt.
Beyond the boulder field, which is generally and oyster-balanus belt, sand bars separated by shallow lagoons extend seaward for hundreds of yards, so that at a minus tide the width of the intertidal zone is one half mile or more. The bar area is also covered with clay and silt patches where tidal carry-off has taken away the sand cover.

Collections include:

At Beach "A", in the boulder strip:
Oysters
Balanus
Clams, especially Prototheca.
Mussels
Black Murex

At Beach "B" and northward, on the steep shore, Zone 1:
Shells only.
Petricola
Crucibulum
Conus
Jingles - Anomia?
And other s

Collector

Lee O.Miles

Collection SC 13

SAN FELIPE, B.C.
North

February 28th, 1952

North of the SAN FELIPE Mountains, at Beach "D".
At low tide in early A.M. Little surf. Fog and tide in at 11.00 AM.
A. On the 3 to 7 sand bars exposed by this low tide, and in the intervening shallow lagoons, in some of which are clay and silt beds . 1,000 yards wide at low tide.
B. On boulders nearer shore, Zones 2 and 3, where the typical fauna is Ostrea-Balanus. Boulders average less than 12 inches
See SC 11 and 12.

Collections include:

A. Large Conus, in outer two lagoons, with silt.
Thais floridana? with covering of
Sponge, orange (on above)
Cerithidea sp.
Sea Cucumbers, small, light to brown.
Nudibranchs, in wet sand near sea; small, creamy white. (Bubble shells??)
Sand Dollar, brown, arrow, keyhole.
" " green, circular, " , small.
Wedgies
Worms in balls several inches in diam, calcareous, like brains.
Worms with yellow growth.
Polinices
Olivella pedroana
Worms, commensal with conus.
Crabs
Crab with clam valve for back.
Pagurus
Turitella
Sea Whips (Pennatulid?) in mid to outer lagoons.
Jack Knife, shells only.

B. Black Murex
Thais floridana, medium size only.
Ostrea, small, crowded too much.
Sea Anemone, pink, on boulder bottoms.
Sea Anemone, green, with above.
Crabs
Pagurus.

Collector

Lee O.Miles

Collection SC 14

SAN FELIPE, B.C.
North

February 29th, 1952

North of SAN FELIPE Mountains, at BEACH "C". See Map.
North on Highway 5 7.6 miles from SAN FELIPE, thence east on dirt road 0.5 mile to Old Highway, nrth 50 feet to arroyo, east down arroyo (Jeeps only) 0.7 mile to Beach "C". Worked north along sandy shore at foot of usual alluvial cliffs.
Boulder filled at the beach has been so badly sanded and silted that its usual fauna has been lrgely killed off. Few live Murex and Mussels were observed.

Collected:

Algae - Ulva taeniatis?

Sand Dollars, small green keyhole.

Black Murex, a few.

Oysters, a few on bottoms of boulders.

Thais floridana, large specimens.

Polinices.

No Conus observed.

Recent kitchen middens contain Clam Shells, average 4" diameter, showing that clams are taken here for food.

Collector

Lee O.Miles

Collection SC 15 SAN FELIPE, B.C.
North

March 1st, 1952

North of SAN FELIPE on Highway 5 for 4.8 miles, east on dirt road 1.2 miles to Old Highway, south on same 1.4 miles, east on dirt road about 1.5 miles to BEACH "A", part of this last stretch down a sandy arroyo.
Collecting was at Beach "A" and south for a half mile. The alluvial cliffs above Storm mark give way to granitic and rhyolitic? rock cliffs, at the base of which and out into the sea extend boulders of lava, close-grained and hard, granite, and some shale. There is very little silt or clay.
On this date, tide not low, unable to collect out beyond the 3rd or 4th bar.

Collections include:

Pholads in soft shale

Flat worms on boulder bottoms.

Clam, small brown, like Pismo

Black Murex, on outer Oyster bar.

Cone shell, one alive.

Dentalium shell.

Olive shells, washed up on reef where boulder field extends out 200 yards from shore.

Various Pelecypod valves, especially Cardium.

Collector

Lee O.Miles

Collection SC 16

SAN FELIPE, B.C.
North

March 2nd, 1952

North of SAN FELIPE to Beach "D". See Map.
From SAN FELIPE, north along Highway 5 for 7.6 miles; thence east on dirt road 0.5 miles to Old Highway; thence north 1.4 miles to a dirt road running east to the beach for 0.75 miles.
Beach "D" is clean sand, with silt only in the lagoons in patches, well out. Boulder fields if any, are sanded over by wash from the large arroyo at this point. Alternate bars and lagoons extend out for over one mile at a Minus 1.0 foot tide. As proceed north along this shore north of San Felipe Mountains, the exposed flats become more free of boulders, and more silt.

Collections include:

Jelly Fish, 2.

Sea Squirts

Barnacles

Tagelus

Ensis

Small red clams (Tellina?)

Wedgies

Various dry shells and valves, including

Laevicardium

6" flat heavy white clam.

Black Murex shells, large.

Collector

Lee O.Miles

Collection SC 17

SAN FELIPE, B.C.
Sulfur Mine Arroyo

March 3rd, 1952

South of SAN FELIPE to Sulphur Mine at 23.3 miles; thence east toward the beach 4.4 miles to Water Hole Corral near shore, in arroyo bed; thence north along dirt road 1.8 miles to Sand Bay. Tide well in, most of collecting done at or near high tide mark. At this time, this bay is quite an impressive body of water, and here and on the outer sea beach, the bottom seems to drop away rapidly and there seems to be no bars. However, later visits at low tide - see SC 33- show that at low tide there is no bay except for tide pools and streams; and that sand bars are exposed fully a mile off shore.

Collections include:

Wedgies
Coral
Sand Dollars, green, circular, keyhole.
" " , brown, arrow, keyhole.
Hydroids
Sea Squirts
Tetkys
Crabs, swimming.
Crabs, small, with heavy claws.

Empty shells:

Cowrie
Olive
Cones
Atrina (Pen)
Strombus
Pecten, 1 valve deep. one flat.
Jewel case clam, ½"
Clam, large, flat.
Laevicardium.
Bubble
Dosis
Lyonsia?
Polinices, large.
" striped or banded.

Cardium, small
" large
Pteria (Winged)
Pink Murex
Black Murex
Ficus

Collector

Lee O.Miles

Collection SC 18

SAN FELIPE, BC
Pta Diggs

March 4th, 1952

PUNTA DIGGS, 18 road miles, about 10 by boat, from SAN FELIPE. Leaving Avalos Motel, proceed south along dirt road below Hotel; at 2.8 miles, pass Little Mountain Mine; at 4.5 miles pass a branch road leading west; at 6.6 miles, reach main fork, take fork to east toward coast; at 13.1 miles reach foot of first ridge of DIGGS MTS; at 14.4 miles, a branch road takes off southeasterly for beach at SAND POINT; continue on left fork, skirting the mountains, turning abruptly north at 15.2 miles; proceeding north parralel to ridges to foundations of ole Radar Base at 17.4 miles. This is 0.5 miles across dunes to beach.

PUNTA DIGGS is actually 4 points. The first, most southerly one, is mostly clean sand; overlaying this sand toward the north is a strata of rock 3 to 4 feet thick, not in layers but seemingly consisting of many irregular flows of lava heavily embedding shell fossils, mostly pelecypod. A sady-gravelly cove interposes between this and the 2nd point, which differs from Point 1 mostly in having a thicker rock layer. Another cove and a third point, the rock strata increasing in thickness to 10 to 12 feet, similar in composition to that of the southerly points but with some layers of nearly shell less sandstone. Here the rock strata submerges and extends an undetermined distance to sea. The most northerly point resembles point 3. The origin of these fossiliferous strata was not determined; the main body of DIGGS MOUNTAIN is granitic, a batholith that has eroded into a number of radiating ridges. Heavy shrubbery grows at the base of these mountains. Near the Radar Station lies and unusually dense grove of sajuaros. A similar stand lies west of the ridges. On the dunes east and south, sand lilies, large white evening primroses, mallow and various composites are plentiful at this season.

Collections along the high tide mark, include:

Pink Murex
Black Murex, alive.
Nerita in the splash zone.
Petricola? alive.
Ensis shells
Prototheca
Olive
Ptria (Wing)
Star fish, dried.
Hydroids
Tethys
Gorgonids
Encrustations, various.
Corralines

Collector
Lee O.Miles

Collection SC 19

SAN FELIPE, B.C.
North

March 5th, 1958

North of SAN FELIPE at Station "A", collecting south along the beach, east of the mountains, past 3 granitic points and the coves they contain. Boulders, sand and gravel are almost purely granitic, with little silt, and a relatively narrow (200 yards) belt of sand bars exposed at low tide.

Collections this date were made in the Ostrea-Balanus zone:

Black Murex, in plenty, rather clean.

Petricola?

Prototheca

Limpets , plentiful.

Crabs, many

Flat Worms

Chitons

Thais

Crucibulum

Fish - eel like, &c

ALGAE

Collector

Lee O.Miles

Collection SC 20

SAN FELIPE, B.C.
Pta Diggs

March 6th, 1952

South of DIGGS MTS at SAND POINT.
From Avalos Hotel in San Fèlipe, south6.6 miles; here take to east or left fork and proceed southeasterly 6.5 miles to the foot of the first ridge fo the Diggs Mts; continue east 1.3 miles; take the right fork 1.1 miles, thence an additional 1.2 miles along the left fork to the top of a low mesa of bench 16.7 miles from Avalos. This overlooks the sand dunes which extend a half mile to the beach. A Jeep can make this half mile, but with difficulty.
SAND POINT extends briefly to the east, and is a fine repository for empty shells brought in by the surf at high tide. The foreshore is abrupt and narrow, of clean sand and gravel; from its foot, low sand bars extend a mile to seaward, running at a slight angle to the beach, draing slightly to the north by half a dozen lagoons. An occasional bed of clay or sand-covered silt, or silt-covered sand , is found.

Collections include:Shells empty, from high tide mark.
Tellina, red
Conus, small dotted.
Olive
Olivella pedroana
Cardium
Laevicardium, fairly abundant.
Dosinia ponderosa, white, circular, flat, 4"-6".
Ensis
Barnacle, red,large.
Barnacle, small, volcano.
Eggshell cardium
Black Murex
Polinices, large, brown.
" , small, white
" banded, gray, medium.
Sand Dollars, green, circular, keyhole.
Aletes (Like worm tubes.)
Ficus
Donax
Nassarius perva?
Pholods
Cast of small spider crab

Collector

Lee O.Miles

Collection SC 21

SAN FELIPE, B.C.
Pta Diego

March 7th, 1952

Same collecting area as yesterday's SC 20; storm last night has enriched the beach, especially at the sandy point.

Collections include the following shells;

Same as collected in SC 20, plus

Calliostoma

Architectona

Cardium

Encrustations, like stalactites.

Ensis

Geoduck? valve

Macoma, bent nose.

Collector

Lee O.Miles

Collection SC 22

SAN FELIPE, B.C.
Punta Diggs

March 8th, 1952

South of Avalos Motel in SAN FELIPE about 16.7 miles, and south of Punta Diggs and the Diggs Mountains, over the same areas collected in SC 20 and SC 21, but extending several miles further south along the sandy beach, and out on the sand bars in Zones 3 & 4. The beaches were of clean and coarse sand and gravel, with only a few small cobbles; with some silt in patches in the lagoons.

Collections include alive:

Cardium, small
Pismo-like small brown clam.
Olive
Olivella
Polinices, reclusiana?
" banded, gray
" milk white. (Natica)
Sea Anemone on Polinices,
" " 12", white, in sand.
Hermite crab, large, heavy claws
Thais floridana?
Iris lamellifer? Ribbed Clam.

Dead shells:
Turritella
Laevicardium
Dosinia
Atrina (Sea Pen)
Pteria (Winged)
Ensis
Tellina?, pink, to 4".
Casts of Porcupine sand dollar, walnut shape and size.
Etc.

Collector,

Leo O.Miles

Collection SC 23

SAN FELIPE, B.C.
Punta Diggs

March 9th, 1952

South of San Felipe and the Diggs Mountains and Point, over the same areas as in SC 20 and SC 21, but further out on Pelican Bar, a good mile long and the highest of the bars off Sand Point. One bar and intervening lagoon lies to the seaward, and much marine life has been washed out of it and on to Pelican Bar, especially on the west or landward side.

Collections include:

Alive:

- Olive. A plowing gastropod, easily located.
- Olivella
- Ridged Clam, light clam
- Natica (White, small)
- Polinices, gray, banded.
- Donax
- Cropidula on Polinices
- Compound Ascidea
- Polinices, (Reclusiana?)
- Sea Squirts

Dead:

- Atrina, small (Sea Pen)
- Pecten diegensis? One flat valve.
- Chlamys (Scallops)
- Ensis
- Laevicardium
- Pink Murex
- Calliostoma
- Cerris
- Red Tellina
- Turritella

ALGAE

Collector

Leo O.Miles

Collection SC 24

SAN FELIPE, B.C.
North

March 10th, 1952

Collected briefly (not a low tide) at Beach "E", well north of previous collections north of SAN FELIPE and its mountains - From the Service Stations at the entrance to town, south along paved highway # 5 for 7.7 miles; thence east aon a dirt road 0.4 mile to the Old Highway (dirt); thence north; at 0.1 miles could have turned east to beach but did not, continued north 1.7 miles and turned east to beach parallel to an arroyo for 1.4 miles.
The beach at this point is sand and gravel with silt and clay much in evidence, apparently increasing as go north toward the head of the Gulf and the mouth of the Colorado River.
The alluvial cliffs fronting the beach have been gradually getting lower and have disappeared at Beach "E".
Many shells are present, semi-fossiliferous, blue from the clay in which they have been embedded; of present day varieties.

Collections at high tide and at storm marks include:

Ficus

Kelletii?

Aletes

Crucibulum

Pecten

Cardium

Black Murex

&c.

Collector

Lee O.Miles

Collection SC 25

SAN FELIPE, B.C.
Punta Diggs

April 1st, 1952

South of PUNTA DIGGS, on sand flats exposed at -0.5 ' tide, and at high tide mark on steep upper beach. Mostly in Zones 2 & 3, Zone 4 not exposed at this tide.
See SC 18
Collections include:

Live -
- Hermit crab in Pink Murex shell.
- Olive
- Conus
- Small crab
- Sand Dollar, small, green, keyhole.
- Natica lactaea
- Olivella
- Donax
- Clam, small, brown.

Shells only -
- Turritella
- Cowrie
- Bulla
- Small clam
- Blue crab cast.

Collector

Roo O.Miles

Collection SC 26

SAN PELLE, B.C.
North - "A"

April 2nd, 1952

North of SAN PELLE MTN at Station "A". Because of tide, unable to get far out on sand bars, collected mostly on inner bars and among small granite boulders, and in pools. See also SC 10, 11, 15, & 19.

Collections include:

Blue Crabs in pools.

Small crabs below boulders.

Mussels

Protothaca

Octopi

Balanus

Ostrea

Jelly Fish

Sponge on Thais floridana?

Crucibulum

Drills

Sea Anemone on bottom of boulder.

Yellow polyp?

Algae 3 ✓

Collector

Leo O.Miles

Collection SC 27

SAN FELIPE, B.C.
North - "D"

April 3rd, 1952

North of SAN FELIPE MTS to Beach "D", driving to cliff top, thence down gully cutting thro these alluvial cliffs to shore.
Tide - 0.3', less than half of bare exposed. Surf moderate, but water muddy.
Accompanied by a Mr. Nichols, malacologist of Riverside, Cal.
See also SC 16

Collections include:

Polinices, buried, brown

Balanus

Mytilus

Thais floridana?

Crucibulum

Black Murex, large, heavily barnacled.

Cerithidea?

Collector

Lee O.Miles

Collection SC 28

SAN FELIPE, B.C.
Pánta Biggs

April 4th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars exposed at low tide, and in intervening lagoons and tide streams.
See also SC 20, 21, 22 & 23.

Collections include:

Hermit crab)
Sea Anemone) all on a Black Murex shell.
Hydrids)

Natica lactaea?

Banded Polinices

Polinices sp. Large brown.

Clam, small brown, like Pismo.

Olive

Olivella

Gorgonid, red

Gorgonid, yellow

Black Murex

Also shells of above, empty, and others -

Pecten, flat valve.

Collector

Leo O. Miles

Collection SC 29

SAN FELIPE, B.C.
Punta Diggs

April 5th, 1952

South of PUNTA DIGGS, east of Radar Station.
Steep upper beach of sand and gravel , backed by low alluvial cliffs, in turn backed by sand dunes. At foot of steep beach, mostly Zone 1 and 2, sand bars with usual lagoons are exposed at low tide in Zones 3 and 4. Some boulder fields, Z 3.
See also SC SC 12 and 25.

Collections include:

Pteria, wing shell.
Cling Fish
Other small fish
Eggs, yellow, in netted cords.
Crab case
Gorgonids, pale.
Crabs, small black, heavy claws; in boulders.
Hermit Crabs
Thais floridana
Black Nurse, especially small, white.
Polinices plain, brown
" banded
Nudibranchs?
Olive
Olivella
Sea urchins, 2 species?
Littorines, speckled.
Clams, small, asst'd; white, blue, pink, brown.
Atrida, rough, in boulder fields.
Scotch Bonnet, 2 mating at foot of steep beach, taken by Browns.

SHELLS:

Thais, large mouth, orange interior.
Spindle shells, small, with Pagurus.

ALGAE -

Codium fragile

Collector

Lee D Miles

Collection SC 30

SAN FELIPE, B.C.
Punta Diggs

April 6th, 1952

South of PUNTA DIGGS, east of Polar Station.
Same as SC 29, but out on first sand bar (from shore) and in intervening lagoon. Practically no silts - a long lagoon, shallow, much of bottom fairly free of ripple marks, sandy, with a little surface silt in patches.
See also SC 29.

Collections include:
Conus sp, where some silt.
Black Murex, most common, small.
Pteria, wing shell, among boulders with above.
Atrina, rough, boulder field.
Olive - plentiful, along and in lagoon, both shores.
Polinices, large, plain.
" Grey, mottled
" White
" striped br & wh.
Tellys
Crab, pebbled claws
Other crabs
Siran decpulosum - Bar Shell.
Clam, brown, Pinna lim.
Octopus
Cling Fish
Small frilled fish
Shrimp, dark green.
Corgonia, Red
Olivella
Macoarius parva?
Spindle shells
Sand Dollars, small keyhole.
Worm, distended, in sand and silt, flower-like.
Brittle Stars
Twenty Bay, knobby stars.

ALGAE, 2.

Collector

Leo O.Miller

Collection SC 31 SAN FELIPE, B.C.
South

April 9th, 1952

South of SAN FELIPE on sand flats outside the oyster bars, and in intervening lagoons. Area too well picked over by natives as well as tourists.
See also SC 6,7,8,9,10.

Collections included:

Sand Dollars, keyhole, large, brown.

Olive

Neck of large clam seen on inner margin of sand bar 2nd out from Shore; unable dig him out account sand caved in, and quite deep.

ALGAE.

Collector

Lee O.Miles

Collection SC 32

SAN FELIPE, B.C.
North - "A"

April 10th, 1952

North of San Felipe Peaks, at Bench "A";
in early morning at low tide;
to the south of the main arroyo draing past the mountains,
among the boulders in Zones 1 to 3.
See also SC 11, 15, 19, 26.

Collections include:

Conus, where sand is overlain by silt, thinly.

Olive

Olivella

Worm tubes

Crabs, small, round, marked.

Polinices sp. Large, plain.

Spisula

Turritella

Black Murex

ALGAE, on boulders.

Collector

Lee O.Miles

Collection SC 33

SAN FELIPE, B.C.
Sand Bay

April 11th, 1962

At SAND BAY, , between PUNTA FERMIN and PUNTA DUGES; reached by by dirt rad south of SAN FELIPE for 22.0 miles to GULFIER MINES, thence on south 1.5 miles, then east 4.4 miles to Water Hole and corral near beach, thence north parallel to beach for 1.8 miles to south edge of SAND BAY. This Bay, see SC 17, is almost circular at high tide; but at low tide is an expanse of exposed sand bars, extending seaward over 1½ miles. At the west edge of the "bay" are several exposed boulder fields. Silt and clay are found in patches, especially in area of the tidal run-offs.

Collections include:

On Oyster bars (Boulders)
Oysters
Crabs
Black Murex in silt nearby
Pink Murex, preying on Conus.
Sea Anemone
Twenty ray banded star fish

On Sand Flats, especially well out:
Conus, large species, a few.
Conus regularis , spotted, many.
Polinices, brown banded
" small white.
" plain, brown.
Olive; most plentiful.
Olivella
Donax

On sand flats, closer to shore:
Turitella, small.
Olivella
Sea Anemone, long, creamy, buried.
Polinices, large brown.
Donax

In silt on sand:
Conus, large
Polinices, large brown.

A rich collecting area.

Collector
Leo G.Miles

Collection SC 34

SAN PEDRO, B.C.
Sulfur Mine.

April 17th, 1952

From camp at water hole and corral near mouth of ARROYO ESTRELLA (Star Gulch), collected south along beach for some 4 miles. Sand dunes above alluvial cliffs, low here; below cliffs, sand beach, low and narrow, stone crept, then high tide marks at top of steep fore shore, Zones 1 & 2; and below this, seaward, 2 to 4 sand bars with usual dividing lagoons and bisecting tidal run-offs; with occasionals exposed tongues of lava boulders running out to low tide into Zone 4.

Collections include:

On Sand Bars:

Olive
Olivella
Pollucos, plain brown.
Sand Dollars, keyhole, green.
" " ", brown, arrow shped.
" " " " circular, large.
Scotch Bonnet, buried like Pollucos.
Twenty Ray Star Fish, many.

On rocky boulder fields:

Pteria storna.
Atrina, rough.
Strombus gigilis?
" alatus ?
ALGAE, broad leaf, with
Bryozoa on above.
Compound Ascidian, red.
" " yellow
Worm, red.
" black.
Crab, heavy claw.
Spindle shells, 3" to 4". Alive.
Star Fish, long spinal, 5 arms.

In lagoons.

Pink Murex
Sea Urchins, long heavy spines.
" " long, slender purple spines.
Hermit crab , large, in Black Murex.
Twenty ray Star Fish.

Whole skeleton midway on beach, near high tide mark.

Collector

Leo G.Miles

Collection SC 35

SAN FELIPE, B.C.
Sand Bay

April 13th, 1952

See also SC 17 and 33.
North of Camp at Water hole and corral in ARROYO ESTRELLA, east of Sulphur Mines, in SAND BAY and on outer bars as much as 1½ miles off high tide mark.

Collections include:

From bars, lagoons and run-offs ½ to 1 mile offshore.
- Conus regularis (Spotted)
- Olive
- Olivella
- Clam, brown to 2.5 inches.
- Pecten
- Spider Crabs
- Sand Dollars, keyhole, arrow.
- " " " small, green
- " " " large, brown, circular.
- Tellinacea, banded.
- Donax
- ALGAE, like knotted string.

From bars and lagoons inshore, in "Bay", on or near Oyster Bars.
- Black Turban
- Conus, large striped, in pairs.
- Tellinacea, large, plain.
- Drills
- Oysters
- Balanus
- Cerithidium
- Nassarius perna?
- Hermit crab in Tellinid one.

From Splash Zone, in saint sands
- Fiddler Crabs.

Collector

Leo G. Miles

Collection SC 36

SAN FELIPE, B.C.
Punta Diggs.

April 15th, 1952

South of San Felipe and south of DIGGS POINT AND MTS, just north of the beach "road" past the old Radar Station - north from this road about 1 mile.
Vertical sand bars and boulder fields; the inner lagoon and the foot of the steep shore, Zone 2, especially prolific.

Collections include:

Olivo
Polinices, plain brown.
" banded
" grey, mottled.
Black Murex
Olivella
Cerpenide
Atrina, rough
Clam, small brown, Plano-like.
Thais fabridana?
Keyhole limpets
Crepidula nivea
Chitons
Turritella
Bulla sp. Look like nudibranchs.
Crabs

Cling Fish
Fish, small, from under boulders.
Shrimp.
Crawlers under rocks; not taken.

Collector,

Lee O. Miles

Collection SC 37 SAN FELIPE, B.C.,
North "A"

April 16th, 1952

North of SAN FELIPE MTB, at Beach "A";
varied sand bars and boulder fields, north from the arroyo
down which reached the shore, to and past beach "B".

Collections include:
Black Murex
Polinices, plain, large.
Polinices, grey, mottled.

Collector

Leo O.Miles

- -

Collection SC 38 SAN FELIPE, B.C.
South by boat.

April 17th, 1952

South by small boat to N. end of PUNTA BIGGS, to a double
cove, both shallow and exposed; tide not low, little result;
but shells on exposed beach indicate rich yield at a lower
tide. Today, only one bar exposed.
South of this double cove, strata of fossiliferous rock
slants down into water gradually. Not greatly worn.

Collections include:

Crabs	Black Murex
Nerita	Tegula
Chitons	Limpets
Crucibulum	Olivs
Clam, heavy, white; valves.	Turritella
Oyster	Crepidula adunca
Pea borer	

Collector

Leo O.Miles

Collection SC 39 SAN FELIPE, B.C.
Rocks at Light.

April 22nd, 1952

In SAN FELIPE, on rocks below Volcano Light, opposite Miramar Cafe. Rocks volcanic, no sand bars, some pockets.

Collections include:
Atrina shell.
Limpets, blue centers.
Crucibulum
Black Murex, in pools.
Hermit crabs in Black Murex shells
Crepidula nivea.

Collector
Lee O.Miles

- -

Collections SC 40 SAN FELIPE, B.C.
N. of 1st N. Peak.

April 23rd and 24th, 1952.

In small cove north of first north peak north of SAN FELIPE, at end of dirt road passing camps along shore at north end of town. Sand dunes merge into upper beach, not as steep as usual on this shore; the upper sand and gravel beach with boulder (granitic) fields sloping down gradually to sand bar and adjacent lagoon; some shallow silt in this lagoon.

Collections include:
Balanus
Oysters, few.
Black Murex
Conus, with silt, as usual.
Limpets
Margaritas
Polinices, plain, brown.
Prototheca sp.
Petricola
Barnacles, red.

Collector,

Lee O.Miles

Collection SC 41

SAN FELIPE, B.C.
Punta Digg s, S.

April 25th, 1952

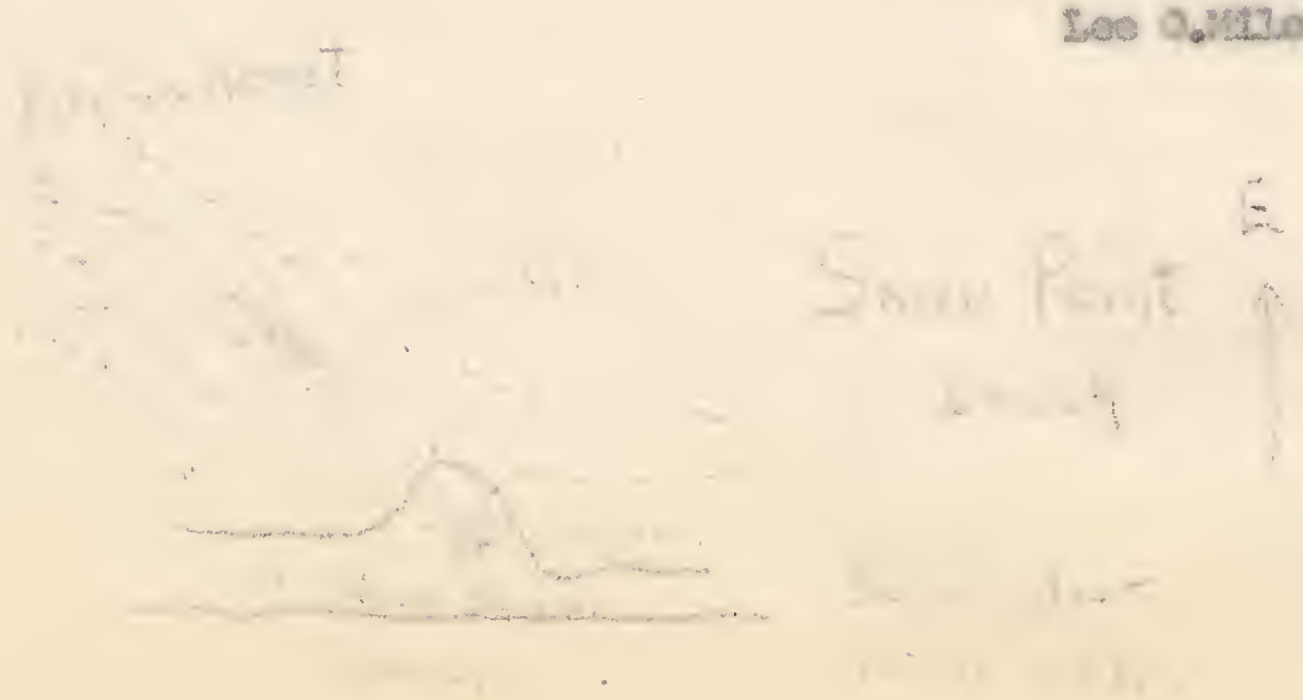
At SAND POINT south of PUNTA DIGGS, on sand bars reaching east and north, with slight curve back toward shore, with intervening lagoons shallow and without silt except in occasional shallow patches.
The end of the bars where pelicans roost during low tide is over 2 miles from shore.
The inner beach is about 75 feet wide, 20 degree slope.
See also SC 20, 21, 23, 28, 41.

Collections include:

- Conus
- Olive
- Olivella
- Polinices, grey.
  - " plain brown.
  - " banded
  - " white, small
- Donax
- Crabs
- Sea Squirts
- Scotch Bonnet, shell only.
- Ischis
- Pink Murex
- Black Murex
- Turritella
- Laevicardium
- Sponge
- Gorgonia, white
- Aphrodite, sea mouse; in sand, burrows like Olive.
- Spider crab
- Crucibulum shells
- Hydroids

Collector

Lee G. Miles



Collection SC 42 SAN FELIPE, B.C.
Sulfur Mine

April 26th, 1952

From camp at Waterhole and corral in ARROYO ESTRELLA east of Sulphur Mines and 23 miles south of SAN FELIPE, south along beach for about 5 miles, nearly to PUNTA SAN FERMIN.
Fore shore usual steep sand and gravel beach, narrow.
Bars alternate with lagoons and tidal run-offs, and in patches, contain some clay and silt.
Many rather extensive boulder fields reach from the steep foreshore out to Zone 4, low tide, and beyond. Many of those fields are either being newly uncovered, or newly covered by sand; perhaps both.

Collections include:
Sea Urchins, fine long spines, purple.
" " Heavy spines, greenish.
Sponge, red, in Zone 2 (Balanus), in beds.
Bryozoa, red
Corallina hydroid, purple.
Trivia shell.
Spindles
Conus regularis
Olive
Olivella
Pollinices, plain brown
" Gray
" White, small
Clam, small brown, like Pismo — Carcass of 10' shark
Bouinia sp.
Donax — Whale skeleton
Strombus gigilis
" alatus shell. — Discs from backbone of PORPOISE
Turritella
Ptoria sterna — Disc from Whale?
Thais, large orange aperture.
Atrina, rough.
Bulla shells
Crabs, Z 3
Fiddler crabs, Z 1 and Splash Zone.
Aletes?
Sparrish, like Henricia a bit.
Spider crab, small
ALGAE, small, bottom of boulders.

Collector

Lee G.Miles

Collection SC 43

SAN FELIPE, B.C.
Sulphur Mine.

April 27, 1952

From ARROYO ESTRELLA, collected north over 2 miles along beach to opposite south of SAND BAY, mostly on first bar out. Bars run north parallel to the coast, are of nearly pure sand, hard packed, without any boulders or silt. Fully exposed to all winds on the Gulf. The fore shore is steep, as usual, and the storm beach above it is wider than usual. No alluvial cliffs, but sand dunes covered with sparse brush are above the storm mark. As near SAND BAY, the bars and lagoons bend N.E. away from t the shore.

Collections include:

In first lagoon below steep fore shore:

Sand Dollars, green circular keyhole, juvenile.
" " brown, arrow shape, " juvenile, size 10¢ to 25¢.

On Cobbles off shore:

Olivella
Strombus pugilis kicking out of sand near mid-bar.
Oliva
Donax
Clam, brown, Piano-like.
Crabs, mottled, dumly; squirt.
Turritella, in hard sand.
Cerithidium
Jack knife clam; move along surface 12" to 14", then dig in.
Black Urchin; covered with Algae and Hydroids.
Limpets, white, conical, attached to bottom of old shells or sand dollars, which they lift off sand.
Star Fish, sand type, fragile.
Corus regularis; in hard sand, apex down, canal just out.
Sailor's Ear, valve only.
Pteria sterna, Wing Shell.
Pecten shells
Hydroids
Grubs, enlarging.
Rope Compound Ascidian, long ropes, with nodes, not attached.

ALGAE

Collector

Leo G.Miles

Collection SC 44

SAN FELIPE, B.C.
N. of 1st N. Mt.

April 29th, 1952

Near SAN FELIPE, north of the first north mountain; Boulder field, in Zones 1, 2 and upper 3. Boulders almost entirely granitic, well worn and rounded.

Collections include:

Barnacles

Black Murex

Oliva

Chitons
"
"
"

Limpets
"

Clam, bent nose, heavy shell.

Crucibulum

Acanthaea versicolor

Button shell

Tegula

From Seaner Avalon, shells only:

Murex, spider

Ficus

Scotch Bonnet.

Collector

Leo O.Miles

EM 4 8-7 8

Collection LM 44-50 MARCO ISLAND, FLORIDA.

14 Sept. 1950.

On the sand beach on the west coast of MARCO ISLAND, Florida, open to the Gulf of Mexico; taken at and above normal high tide mark in the litter washed up a week previous by a local hurricane.

Collected d ead shells of the following:

Atrina rigida
Atrina serrata
Pecten irradians
Pecten gibbus
Ficus papyratia
Strombus pugilis
and others.

Collector Lee O.Miles

Collection LM 45 - 50. MARCO ISLAND, Florida.

14 Sept. 1950.

On the sand flats at the inlet to lagoon and tidal stream at the north end of Marco Beach; taken at low tide between 4.30 PM and 7.00 PM. All on or near the surface adjacent to the channel on clean sand. Tidal flow in and out of this inlet is strong.

Collections include:

Pecten sp.	Sea Squirts
Corona	Barnacles
Busycon	Crabs
Murex pomum?	Sponge on Pecten
Arca	Grey Ascidea?
Bryozoa	Sea Cucumber

and others.

Collector, Lee O.Miles

Collection LM - 46 - 50 MARCO ISLAND,
Florida.

15th Sept. 50.

Collected at MARCO ISLAND, Florida, on sandy beach open to the Gulf of Mexico, at and near normal high water mark in the wrack of last weeks hurricane.

Collected were empty shells of the following:

Olivella
Oliva sayana
Fasciolaria gigantea
Terebra
Bulla occidentalis
Natica canrena
Calliostoma jujubinum
Spisula solidissima
Anatina canaliculatum
et al.

Collector Lee O.Miles

Collection LM 47 - 50 MARCO ISLAND,
Florida

15th Sept. 50.

Collected at MARCO ISLAND, Florida, at low tide between 9.00 AM and 11.00 AM; on sand flats at the Inlet to the Lagoon at the north end of the above open beach, and in the protected Lagoon between the islet and the main shor e of Marco. This protected locale has a muddy sand bottom, in places much silted, and with little or no obviuos current. Specimens from this lagoon are marked *.

Collected :

Cancellaria
Strombus pugilis*
Busycon perversum*
Cerithium minima*
Macrocallista nimbosa
Laevicardium serratum
Dinocardium robustum*
Trachycardium isocardium
Modulus modulus floridana
Conus floridanus
Strombus pugilis alatus*
Busycon canaliculatus *
Crepidula fornicatus*
Chione cancellata*
Pecten gibbus*
Trachycardium muricatum
Chitons

Collector Lee O.Mile s

Collection LM 48 - 50 MARCO ISLAND,
Florida.

16 Sept. 50

Collected along the west or open Gulf coast of MARCO ISLAND above mid-tide in the wrack left by last weeks hurricane; south from the end of Florida Highway # 92. Open exposed sand beach, about 100 feet from high tide mark to low tide mark, horizontally.

Collections include:

Laevicardium	Fasciolaria tulipa
Calliostoma	Chama macerophylla
Fasciolaria gigantea	Pectens, several sp.
Conus	Trachycardium muricatum
Lima scabra	Anomia sp.
Macrocallista	Bullaoccidentalis
Spirula	Rock Oyster
Pteria colymbus	Arca sp.
Cancellaria	Oliva sayana
Ficus papyratia	Arca occidentalis
Murex sp.	Crepidula fornicata
Strombus alatus	Atrina rigida
Atrina serrata and others.	

Collector, Lee O.Mile s

Collection LM 49 - 50 MARCO ISLAND,
Florida.

16 Sept. 50.

Lagoon north of the Inlet at the North end of MARCO BEACH; same area collected in part in LM 47-50. Bottom is muddy sand, well silted especially long the east shore. Little current; the water is more than tepid.

Collections include:

Nudibranchs, large, brown.	Sea Squirts
Strombus pugilis	Fasciolaria gigantea.
Sinum perspectivum	Busycon perversum
Fasciolaria tulipa	Shrimp
Uca pugilator?	Foliata (Crab)
Black-claw crab	Hairy crab
Arca sp.	Trachycardium mricatum
Encope michelini	Atrina rigida
Dinocardium robustum	Tellina alternata

Collector, Lee O.Miles

Collection LM 50 - 50 MARCO ISLAND, Florida.

17 Sept. 50.

Collected on the open Gulf beach, clean sand ; at the south end of the Island and along the north shore of SOUTH INLET. This beach becomes wider as it goes south, becoming 200 feet wide facing the Inlet. Here it grows mangrove and some shrubbery, and peat and clay are exposed here and there.

Collections include:

Littorina sp. On trees.
Olivella sp.
Murex pomum?
Alphabet shell
Cancellaria
Crepidula aculeata (File)
Mytilus, plain.
Pecten sp.
Chama macerophylla (Treasure)
Busycon cancellata
Clam, small, white, sculptured.
Oliva sayana
Murex sp. Thin, purplish.
Conus sp.
Fasciolaria gigantea
Arca occidentalis (Turkey wing.)
Ficus papyrata
Fasciolaria tulipa
Natica canrena?
Busycon perversum
Terebra sp.

Mostly empty shells.

Collector, Lee O.Miles.

Collection LM 51 - 50 MARCO ISLAND, Florida.

17 Sept. 50.

At low tide in the Lagoon at the North Inlet, same area as covered in LM 49 and previously. This lagoon is known locally as CLAM FLAT.

Collections include:

Sponge, yellow brain-like.
" Dark purple finger.
" Orange finger, long.
" Pale purple finger, rough.
" Red coral-like.
Limulus polyphemus (H.S.Crab)
Star fish
Small red shrimp, in coral &c.
Gray Pistol Shrimp.
Murex, pomum
Mellita quinquiesperforata (Round 5 slit sand dollar.)
Strombus pugilis et al.
Dinocardium robustum
Fasciolaria tulipa
Crab, black-clawed.
Red Shrimp, larger.
Macrocallista
Trachycardium muricatum.
Foliata (Crab)
Pagurus

Collector, Lee O.Miles

Collection LM 52 - 50 KEY LARGO, Florida.

19 Sept. 50.

South of Gordon's Landing at ROCK HARBOR on Key Largo, about 200 yards. Near the Stilt House. Coral rock, varying from four feet above low tide, bare and honey-combed, to low as low tide level, with mangroves. Shallow off shore, with little coral sand on the coral bottom, at low tide not more then hip deep at 100 or more yards from shore. An island off shore protects somewhat from heavy surf. This water is HAWK CHANNEL.

Collections include:

Vasum muricatum Z 2 Vase shell.
Pedalion alata Z 1 & 2. Winged tree oyster
Fasciolaria distans. Z 3.
Sponges Z 4
~~Spirula~~ Vermicularia spirata; in sponges.
Cucumaria sp. ; on sponges.
Hydroids
Calinectes sapidus - blue crab. Swimming, Z 4.
Crabs, leaf-like; on sponges.
Nerita versicolor - Baby tooth nerita; Zone 1
N. tessellata - Black & white nerita; Z 1
Coral, ball shape. Z. 4
Clam shells, empty; pink.
Mytilus; with rock oyster, Z 1 & 2
Sea Anemone, Z 4
Sea Urchins, blue with short spines; Z 4, in coral pockets.
Limulus polyphemus - Horseshoe crab; in tide pool, Z 2.

Not a nearly complete representation from this area, due to poor collecting conditions - not a very low tide, and a choppy sea interfering with visibility.

Collector, Lee O.Miles

Collection LM 53 - 50. KEY LARGO, Florida.

20 Sept. 50.

HAWK CHANNEL, North KEY LARGO; 13.5 miles north of Rock Harbor Lodge on U.S.Highway 1 (old and new), turning east on a dirt roadway at an old dishpan marker. Collections were made at a normal low tide on the ocean shore, coral to 4 feet high (above low tide) to as little as -0.5 feet above, this type of shore being silted and grown to mangroves; and other collections (B) were made from trees along the Highway.

Collections include:

From the shore outward to 2 feet below low tide:

Panulirus argus - Florida crayfish or spiny lobster; Z 4
Cerithidium minima - littoral & Z 1.
Urosalpinx - Oyster drill; Z 1 & 2.
Callinectes sapida - blue or swimming crab; Z 3 & 4
Hydroids
Vermicularia spirata, in sponges, Z 3 & 4.
Compound ascidea.
Coral, ball type.
Coral, finger type.
Pagurus sp ?
Chitons. Zones 3, 2 & lower 1.
Siphonaria alternata; Z. 2, 3 & 4.

From trees along old Hy 1:

Ligua sp. Tree snails, no operculum.
Mottled tree snail, smaller than above.
Truncatella ? On cherry boles.

Only a partial representation of the commoner organisms present; tide not very low, surface choppy.

Collector

Lee O.Miles

Collection LM 54 @ 50. KEY LARGO, Florida.

21 Sept. 50.

On BUTTONWOOD SOUND, on the west shore of Key Largo; north of Rock Harbor Lodge on U.S.1 to the German Memorial Church, turning west here on an overgrown dirt roadway 200 yards to the shore. The shore here is rough coral, reaching up to 3 feet above low tide. Best collecting is on loose coral rocks of old boat landings. This cove is known as Sunset Cove and is well protected by Pelican and other keys.

Collections include:

Murex florifer or a similar species.
Pinctada sp., especially juveniles.
Rice clams; small brown grain like shells on rock bottoms.
Mytilus sp.
Fasciolaria distans; a large dead specimen.
Keyhole limpets. On rocks and submerged timbers.
Star fish.
Fish, small, red.
Fish, speckled grey & white.
Sea anemone.
Pyrene mercatoria.
Modulus modulus - button snail.
Fasciolaria distans, juvenile.
Pistol Shrimp.
Small crabs.
Comp. Asciaea, orangs, knobby.
Comp. Ascidaea, dark green, slimy.
Nudibranch? small.
Scale worms.

See also collections LM 11 - 49, et al.

Collector

Leo O.Miles.

Collection LM 55 - 50 Lower Matecumbe ~~KEY LARGO~~, Florida.

22 Sept. 50

See also "A" of LM 24 - 49.
On LOWER MATECUMBE just south and east of Hy 1 Causeway at MATECUMBE HARBOR, on the shore of HAWK CHANNEL, open to the sea except for off-shore reefs some five or six miles toward the Gulf Stream. Collecting was done on coral boulders of a small jetty and on the thinly sanded bottom where shallow tide pools at low water yielded well.

Collections included:

Melongena corona in the shallow pools and thin sand.
Purples - Zone 1 and on jetty.
Astraea longispina shell with Hermit Crab.
Astraea americana shell with hermit crab.
Nerita peleronta Zone 1.
Nerita tessellata " 1.
Nerita versicolor " 1.
Purporita pupa " 1.
Natica canrena shell with Hermit Crab.
Littorines, including Littorina ziczac. Z. 1.
Tectarius muricatus.
Modulus modulus floridanus with Hermit Crab.
Pagurus sp. in large shell of Fasciolaria.
Cerithium sp.
Pyrene sp.
Crab, foliated type.
Crab, heavy black claws.
Nudibranch, green. On rocks of jetty at low water.
Bryozoa?
Sea Cucumber, black.
Sea cucumber, white speckled.

See also Collection LM 24 - 49.

Collector,

Lee O.Miles

Collection LM 56 - 50 GRASSY KEY, Florida.

22nd Sept. 50.

See also Collections LM 19, 30, 36, 37, 56 and 62.

ON GRASSY KEY, in the shallow waters between HAWK CHANNEL and the key, at a point just off Hy 1 to the east and south about 0.3 miles south of "SEASIDE CABINS" and store. The shore here slopes abruptly from High Tide mark to normal LOW water mark, a drop of about 4 feet in a distance of 10 to 20 feet; from there the shore slopes abruptly to bottom of coral sand with much broken shell, this bottom almost level, the water at normal low tide being only two feet deep at some 300 yards from shore. Beach open to the sea, except for the submerged reefs of the Turtle Shoals and others out 5 to 7 miles.

Collections include:

Busycon perversum; large live specimens at 1 foot depth.
Strombus gigas. Same niche.
Natica canrena shell and Hermit Crab.
Polinices sp. shell and Hermit.
Banksia in sunken timber.
Red Sponge, finely divided.
Crabs, variuus species.
Fasciolaria distans.
Pagurus sp.
Coral, white with pink dots, on twig.
Sea Urchins, white to pink.
Arca sp.
Mytilus exustus.
Codakia orbicularis shell.
Loripinus chrysostoma.
Tonna perdix shell with hermit crab.

See also other collections listed above for other dwellers in this area.

Collector

Lee O.Miles

Collection LM 57 - 50 LOWER MATECUMBE,
Florida Keys.

23rd Sept. 50.

See also Collections LM 34, 58 and in part, LM 29.

On LOWER MATECUMBE KEY in the shallow waters between Hawk Channel and the key, open to the sea except for the submerged reef some 6 miles offshore; at a point on Hy 1 about 2.5 miles southwest of Indian Key Drawbridge. See LM 34 - 49 for description of varied littoral and bottom conditions.

Collections include:

Sponge, purple.
" red
" brown finger or vine like, grows along bottom.
" green fan-like, oscula on edge.
" cup type, like "Venus Girdle"
" dark green ball.
Encrustations on Gorgonids
Gorgonid, 4 angled.
Encrustations, hard, on twigs.
Pyrene sp. on and at base of sponges.
Shrimp, with above.
Small clams with above.
Worms in green sponges.
Strombus gigas, half grown specimens.
Coral, knobby, yellow.
Coral, finger-like, yellow.
Panuliris argus, small crayfish, under spines of
Sea urchin, long spined.
Fish, with sponges, commensal.
Goose barnacles on bamboo afloat.
Crab, like Mimulus foliata.
Crab embedded commensally in Comp. Ascidaea.
Crab with heavy black claws
Callinectes sapida - blue swimming crab
Crab, speckled.

For other resident species, see other collections above.

Collector,

Lee O.Miles

Collection LM 58 - 50 LOWER MATECUMBE KEY, Florida.

24th Sept. 50.

See also collections LM 57 and 34.

Collections were made at the same location as covered in the collections listed above, except that with a glass-bottomed box for better vision, the water was worked to a depth of three feet at a distance up to nearly 150 yards from shore, at low water. For a description of the varied bottom and littoral conditions, see LM 34.

Collections include:

Crab from cloacal cavity of sponge.
Panulira argus, crayfish, from around sponges.
Same from shelter of long-spined sea urchins.
Mytilus exustus?, yellow-green, in sand in 2' of water.
Astraea americana, on sponges and gorgonids.
Astraea longispina, with above.
Pelycopod, small.
Polinices lactea.
Natica canrena shell.
Gorgonid, pinnately branched.
Corals.
Sea Biscuits. Buried in shallow sand, water 2-3 feet deep.
Strombus gigas, half grown. Wtare 1 foot or more deep.
Brittle stars on sponges.

On and around creeping club sponges :
Long-spined Sea Urchins,
Sea Cucumbers,
Crayfish, young,
Crabs of various species.

On and around large Kettle-drum type sponges,
Sea cucumbers,
Long-spines Sea Urchins,
Crayfish, half-grown,
Astraea americana, A. longispina,
Miscellaneous crabs.

For other resident species, see other collections listed above.

Collector

Lee O.Miles

Collection LM 59 - 50 KEY LARGO, Florida

27th Sept. 50.

See also Collections LM 10, 17 and 61.

In FLORIDA BAY, but protected from waves from that open water by the SWASH KEYS, PIGEON, BUTTERNUT and other key s. At a point southwest of ROCK HARBOR LODGE 2.2 miles along Over-sea Highway (US 1) at a point marked by a grove of Coconut Palms at the water's edge, which here is about 75 feet from the highway. A well-protected beach with no surf. Splash zone less than 1 foot above high-water. Zones 2 & 3 are coral rock much honey-combed in spots, with shallow coral sand and silt pockets. Normal low water mark is 75 to 100 feet out from highwater mark with a tida range often but 18 inches, seldom over 3 feet.

Collections include: (Figures at right indicate depth of water in which found, at normal low water.)

Knobby coral	4' plus.
Purple speckled organism on sea weed	3'
Cream colored " " " "	2'
Nudibranch	3'
Sea Anemone	1'-3'
Pyrene mercatoria & P. rusticoides	1'-3'
Marginella apicina	1'-3'
Fasciolaria tulipa	1'-4'
Bulla occidentalis	2'
Busycon canaliculata - small specimen	2'
Cerithium - several species	0'-3'
Modulus modulus floriana	1'-4'
Crepidula plana	3'
Diadora alternata	2'
Chione cancellata	1'-4'
Styela-like growth on Algae	3'
Lemon-like balls on rock bottoms	2'
Limulus polyphemus	0' -4'
Arca sp. - Almost embedded in bottoms of rocks.	1'-3'
Purple sponges	2'-3'
Fish, off sponge.	2'
Crab, mimulus-like, off sponges.	2'
Sponges, Kettle-drum like, optimum depth	2'

For other residents, see collections above-listed.

Collector

Lee O.Miles

Collection LM 60 - 50 LONG KEY, Florida.

28th September 50.

On LONG KEY at a point about 2,000 yards easterly from the beginning of Long Key Viaduct on Hy 1; and about the sam e distance westerly from Jack Steel's Long Key Restaurant and Layton's Cabins, as follows:

A. On the ocean (S) side, open and exposed except for Tennessee Reef and submerged reefs about 6 miles off-shore; with a soft bottom of shifting coral sand and silt. The waves are cutting into the bank and have here up-rooted some trees. Taken by wading.

B. On the ocean side of the same area as above, but in the wrack at high-tide and just above.

C. Across the Key from the above, in FLORIDA BAY, exposed to this extensive water. On rocks at or near high water.

Collections include:

A. Styela-like organism.
Worms in above.
Sponge, scarlet, finger-like.
Sponge, maroon, finger-like.
Thais deltoidea -"purple". Zone 2.

B. Polycopoda, several.
Hermit crabs
Sponge skeletons ("Venus girdle")
Sea urchin testes- Of Eucidaris tribuloides?
Sea Urchin tests - Strongylocentrus drobachiensis, various color effects.

C. Nerita versicolor With red, except white teeth.
Nerita tessellata With black and white only.
Nerite peleronta Bleeding tooth. Becoming scarce.
Fasciolaria tulipa On sand bottom.
Gastropods, several species, on rocks.
Tectarius muricatus.

Not a prolific collecting ground.

Collector

Lee O.Miles

Collection LM 61 - 50 KEY LARGO, Florida.

2nd October 50.

See also collections LM 10, 17 and 59, at this area. Especially LM 59 - 50 for shore and bottom conditions. Collections on this date Oct.2, were extended by wading at low water out to over 5 foot depth, using a glass bottomed box. Results were disappointing.

Collections include:

Fasciolaria tulipa, juvenile to medium size, taken mostly near shore.
Busycon canaliculatum.
Chione cancellata
Anomalocardia cuneimeris (Mostly empty pelycopod shells at 4' to 6feet,)
Conus floridanus, young.
Marginella apicina
Sea Anemone

Collector
Lee O.Miles

Collection LM 62 - 50 GRASSY KEY, Florida.

5th October 50.

On GRASSY KEY, extending collections LM 19,30,36,37 and 56 to the westward, but mostly only above the mid-tide mark, and mostly of wash shells and tests.

Collections include:
Sea Urchin tests of Stron. drob.
" " " " Eucidaris tribuloides?
Hermit crabs
Natica canrena
Sponge skeletons
Arca sp. Turkey Wing.

Collector

Lee O.Miles

Collection LM 63 - 50 CRAWL KEY, Florida.

5th October 50.

See also LM 31 - 49.

On CRAWL KEY in Florida Bay north of Overseo Highway at a point 6.3 miles NE of MARATHON P.O.; close to the highway where coral rock has been removed, resulting in an abrupt drop from Zone 1 to Zones 3 and 4 of from 2' to 3'. Zone 1 is splash area; Zone 2 is an abrupt wall of coral much honeycombed; Zones 3 and 4 are gently sloping of sand and coral silt. All this in an indentation of the coast much protected from any sea off Florida Bay.

Collections include:

Fasciolaria tulipa
Littorina ziczac
Tectarius muricatus
Echinella nodulosa
Cerithium minima
Neritina virginea
Urosalpinx cinereus
Sea Anemone
Chitons
Diadora minuta and D. Alternata
Acmaea punctulata
Siphonaria naufragum
Astraea americana
Arca 2 sp.
Hermit crabs.
Nassarius vibex
Land Snails:
Truncatolla
Sp. An ovate spiral shape.

Collector

Lee O.Miles

Collection LM 64 - 50 MARCO ISLAND,
Florida.

6th October 50.

For description of beach and bottom conditions, see Collections LM 45,46, 47, 49, 51 and others therein referred to.

Collected on Marco Island from the end of the Stat Highway along the outer (Gulf of Mexico) beach to the Lagoon and to Big MarcoPass, the main northern inlet. Conditions vary from exposed outer coast to an almost stagnant lagoon, from pure sand to a heavily silted sandy mud.

Collections include:

Fasciolaria distans in sand on sand beach, Z 3.
Fasciolaria tulipa in the lagoon, Z 4.
Strombus pugilis in the lagoon in Z. 3 & 4.
Sinus perspectivum burrowing like polinices in the lagoon, Zone 3. (Bar Shell; mantle nearly hides shell.)
Encope micheline (arrow sand dollar)in the north lagoon inlet, partly covered by sand.Zone 4.
Star fish, red-brown, with above.
Brittle stars in Zone 4 on the outer beach in and on old shells, particularly in tide pools.
Conus sp. On the outer beach.
Murex pomum? On the outer beach and on the sand flats next to inlet between lagoon and N. Islet.
Murex sp. - flattish; outer beach.
Oliva sayana shell; outer beach.
Chione cancellata. Lagoon in Zone 4.
Atrina rigida nearly buried vertically in Lagoon especially in sandy areas, Zones 3 & 4.
Donax variabilis, wedgies, on bars of outer sandy beach in Zones 3 & 4.
Cerithium floridanum in lagoon, Zoe 4, where silted.
Nassarius vibex (and /or hotessieri) on outer beach especially on sand flats and shallow pools, Z 3 & 4 .
Limulus polyphemus rather ubiquitous except in surf, Zones 2, 3 & 4 where ever water stands. Grown ones stick to Zones 3 & 4 in lagoon, mostly.

Collector

Lee O.Miles

Collection LM 65 - 50 MARCO ISLAND,
Florida.

7th October 50.

See also LM 64 and other collections therein referred to.

On MARCO ISLAND at the northern extremity, on the islet adjacent thereto BIG MARCO PASS, in the inlets and in the lagoon.

Collections include:

A. From the outer beach, exposed but with tidal pools at low water.
Busycon perversum.
Limulus polyphemus inside the bars.
Melongena corona.
Strombus pugilis
Donax variabilis
Trachycardium muricatum.
Small chitons.
Nassarius vibex

B. Busycon perversum
Limulus polyphemus
Strombus pugilis
Strombus alatus
Sinum perspectivum
Chione cancellata
D. Specimens were taken in the lagoon.

Collector

Lee O.Miles

Collection LM 66 - 50 MARCO ISLAND,
Florida.

6th October 50.

See also LM 64 and other collections therein referred to.

On the north end of MARCO ISLAND near Big Marco Pass, as follows:

A. In the lagoon and on the thinly silted flats therein, with sand and broken shells under the silt. More intensively than in previous collections.

B. On the north tip of the islet between the lagoon and the Gulf of Mexico, where Big Marco Pass enters the Gulf; at #2 marker; of shells washed ashore. Clean sandy beach, little protected.

Collections include:

A. From the silted lagoon:
Egg case.
Chitons, small.
Bacope michellina (Sand $)
Melongena corona
Busycon perversum - large specimens almost or entirely buried on Pass side inlet (N) to lagoon, in clean sand. Small and medium specimens seen devouring cerithium and chione, by smothering rather than drilling.
Busycon canaliculata
Strombus pugilis
Strombus alatus
Limulus polyphemus
Polinices sp.
Chione cancellata, perhaps also C. intapurpurea.
Trachycardium muricatum
Sea Stars
Shrimp
Naccarius vibex
Cerithidium floridanum, in groups on silty sand, Z4.
Atrina ~~[illegible]~~ rigida, in lagoon, z 3 & 4, extend to surface or to 2" above; usually heavily barnacled.

B. Same as in LM 65, plus
Crepidula aculeata GMELIN, the thorny crepidula.

Collector

Leo G. Miles

Collection LM 67 - 50 MARCO ISLAND,
Florida.

9th October 1950

See also LM 64 and the other collections listed therein, made on these same areas; and particularly LM 66.

Collections made in the identical areas covered yesterday as shown in LM 66, as follows:

A. In the silted shallow lagoon and on the sandy shores of the same, at normal low water;

B. On the clean exposed sandy beach of the north end of the islet on the shore of BIG MARCO PASS.

Collections include:

A. From the lagoon:
Crab, heavy-clawed.
Limulus polyphemus, a mated pair.
Busycon peversum, buried to nose along lagoon bank.
B. canaliculatum, same as above.
Sand Dollar, round, off same bar as got Encope Mi ch.
Fasciolaria gigantea, young, red.
Fasciolaria distans, most numerous of genera here.
Macrocallista nimbosa in sand, 4"-6" deep.
Trachycardium muricatum.
Murex pomum?
Atrina rigida
Strombus pugilis; predominate for genera here.
Strombus alatus, occasional.
Clams, bent nose, 1 inch average length.
Chione cancellata.
Sinum perspectivum SAY. Ear shells; buried like Polinices.

B. At marker # 2, at north end of islet, shore of Big Marco Pass.
Empty shells same as in previous collections here.

Collector

Leo O.Miles

Collection M 68 - 50 MARCO ISLAND,
Florida.

10th October 1950.

Collected as follows:

A. At low wateron the shore of the lagoon at the east omainland end of the bridge on Florida Highway #92 in shallow water brown as swamp water but clear, on a sandy bottom thinly silted. Shore of sand and clay, overgrown above highwater, some mangroves and shrubbery at waters edge or in it.

B. On the open Gulf coast as on previous dates.

Collections include:

A. In lagoon at highway bridge and east along shore.
In Zone 2 to 4.
Melongena corona in abundance.
Dent-nose clam 1" long, plentiful.
Busycon perversum.
Busycon canaliculatum.
In Zone 1 and above, on shrubbery:
Littorina angulifera LAMARCK

B. On open Gulf coast, empty shells in windrow.
Especially plentiful:
Murex pomum?
Murex sp. Thin, clean, purplish, seem almost transparent.
E chinochama areinalla - Treasure Chest.
Oliva sayana
and others.

Collector

Lee G. Miles

Collection LM 69 - 50 MARCO ISLAND,
Florida.

11th October 1950

See also LM 64, 66 and 67, and other collections referred to therein, made in these same areas.

Collected as follows, but concentrating on the East shore of the lagoon:

A. In the shallow silted portions of the Lagoon, particularly on the east shore.

B. On the open west shore of Marco Island, shells washed ashore.

C. In BIG MARCO INLET at the north end of the islet, on shallow sand bars with considerable tidal current.

Collections include:

A. Crab, horned.
Cucumber?
Busycon perversum
Busycon canaliculatum; plentiful.
Sinum perspectivum
Strombus pugilis
Fasciolaria distans
Atrina rigida

B. Cardium robustum (Dinocardium r.)
Trachycardium muricatum
Echinochama arcinella (Treasure Chest)
Oliva sayana
and other washed shells.

C. Cardium robustum
Trachycardium muricatum
Busycon perversum.

Collector

Lee O.Miles

Collection LM 70 - 50 CALOOSAHATCHEE R.
Fort Myers, Florida.

12th October 1950

See also LM 40 -49.

IN Fort Myers, at the bridge approach at the south end of the bridge on US Highway 41 over the CALOOSAHATCHEE RIVER, at low tide in this brackish tidal estuary. Water at this time and place was the brown of swamp water; at high tide it is clearer.

Collcted:

Neritina reclivata SAY - the green neritina; quite abundant here on the rock and concrete abutments of bridge and bridge approach.

Collector, Lee O.Miles

Collection LM 71 - 50 SANTA ROSA SOUND,
Camp Navarre, Florida.

14th October 1950

See also collections LM 4 and 41.

Off the pier at CAMP NAVARRE in SANTA ROSA SOUND between Santa Rosa Island and the mainland between Pensacloa and Fort Walton on US 98; waded out at low water as much as 150 yards from shore into water 30inches deep; bottom sandy with little silt and with only patches ofgrasslike seaweed. This area is reported to have sustained a heavy population of clams at one time, but does not now.

Collections include:
Melongena corona - 2 large live specimens.
Hermit crabs in shells of Corona and Polinices.
Drill, small specimen on Oyster.
Oysters from pier piling and on sunken objects.
Crepidula plana, on an old tile.

Use of seive discovered worms and small shrimp like Callianassa. These specimens spoiled en route.

Collector
Lee O.Miles

Collection LM 72 - 50 PENSACOLA BAY,
Florida.

16th October 1950

Collected on the east shore of PENSACOLA BAY at the south enf of the bridge on US Hy 98; among loose rocks along the highway embankment and under the bridge. Bay sandy bottomed, shallow, at this point.

Collected:
Thais floridanum - large live specimens of this Florida Dye Shell. Plentiful here.

Collector
Lee O.Miles

Collection LM 73 - 50 MOBILE BAY,
Florida.

16th OCT. 1950

Collcted on the silty mud flats along the causeway approach of US Highway 90 to MOBILE from the East.

Collections include:
Clam shells, empty but paired.
Neritina reclivata on rocks and mud bottom at edge of low water.

Collector
Lee O.Miles

Collection LM 74 - 50 BOLIVAR PENINSULA, Texas.

17th October 1950.

On low and sandy BOLIVAR PENINSULA 10 miles east of PORT BOLIVAR (opposite Galveston) on State Highway 87; a wide sandy beach open to the Gulf of Mexico and washed by heavy surf; offshore water very dirty.

Collected at and above low water in Zones 2 & 3:

Thais floridanum, alive and abundant.
Encrustations, Bryozoa , on shells of above.
Polinices sp. alive.
Empty shells of
Busycon canaliculatum
A Pholad?
Arca sp.

Collector

Lee O.Miles